A&D Weighing


# A&D Weighing

# Weighing Components General Catalog

Vol.1.0

A&D Company, Ltd.

# Table of Contents



## LOAD CELL

Load Cell



## WEIGHING INDICATOR

Indicator

## Load Cell Lineup

| Type | | Model | Product Page | Specifications | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Rated Capacity | < 10 N (< 1 kg) | 10 < 100 N (1 < 10 kg) | 100 N < 1 kN (10 < 100 kg) | 1 < 10 kN (100 kg < 1 t) | 10 < 100 kN (1 < 10 t) | 100 kN < 5 MN (10 < 500 t) | Material |
| Load Cell | Beam Type | LCB03 | P 17 | 30 N to 600 N (3 kg to 60 kg) | | ✓ | ✓ | | | | Aluminum |
| | | LCB04 | P 17 | 600 N to 2.5k N (60 kg to 250 kg) | | | ✓ | ✓ | | | Aluminum |
| | | LCB05 | P 18 | 300 N to 1.5 kN (30 kg to 150 kg) | | | ✓ | ✓ | | | Stainless steel |
| | | LCB22 | P 18 | 58 N to 588 N (6 kg to 60 kg) | | ✓ | ✓ | | | | Aluminum |
| | | LCB25 | P 19 | 4.9 N to 29 N (500 g to 3 kg) | ✓ | ✓ | | | | | Aluminum |
| | | LC4001 / LC4001A | P 19 | 1.2 N (120 g) | ✓ | | | | | | Aluminum |
| | | LC4101 | P 20 | 6 N to 150 N (600 g to 15 kg) | ✓ | ✓ | ✓ | | | | Aluminum |
| | | LC4102 | P 20 | 100 N to 1.5 kN (10 kg to 150 kg) | | | ✓ | ✓ | | | Aluminum |
| | | LC4103 | P 20 | 600 N to 1.5 kN (60 kg to 150 kg) | | | ✓ | ✓ | | | Aluminum |
| | | LC4204 | P 20 | 3k N to 6 kN (300 kg to 600 kg) | | | | ✓ | | | Aluminum |
| | | LC4221 | P 21 | 100 N to 3 kN (10 kg to 300 kg) | | | ✓ | ✓ | | | Stainless steel |
| | | LC4212 | P 21 | 3 kN to 12 kN (300 kg to 1.2 t) | | | | ✓ | ✓ | | Aluminum |
| | | LC5206 | P 22 | 3 kN to 20 kN (300 kg to 2 t) | | | | ✓ | ✓ | | Tool steel |
| | | U2Z1-A | P 22 | 10 N to 5 kN (1 kg to 500 kg) | | ✓ | ✓ | ✓ | | | Tool steel and Aluminum |
| | | LBP | P 23 | 100 N to 10 kN (10 kg to 1 t) | | | ✓ | ✓ | ✓ | | Tool steel |
| | | LCM13 | P 24 | 1 kN to 50 kN (100 kg to 5 t) | | | | ✓ | ✓ | | Stainless steel |
| | | LCM13-M | P 24 | 1 kN to 30 kN (100 kg to 3 t) | | | | ✓ | ✓ | | Load cell and mounting bracket: Stainless steel |
| | | LCM19 | P 25 | 5 kN to 20 kN (500 kg to 2 t) | | | | ✓ | ✓ | | Tool steel |
| | | LCM19-M | P 25 | 5 kN to 20 kN (500 kg to 2 t) | | | | ✓ | ✓ | | Load cell: Tool steel<br>Mounting bracket: Stainless steel |
| | Tension / Compression Type | LC1122 | P 26 | 500 N to 5 kN (50 kg to 500 kg) | | | ✓ | ✓ | | | Aluminum |
| | | LC1205 | P 26 | 200 N to 50 kN (20 kg to 5 t) | | | ✓ | ✓ | ✓ | | Tool steel and Aluminum |
| | | LC1205-USB | P 27 | 200 N to 50 kN (20 kg to 5 t) | | | ✓ | ✓ | ✓ | | Load cell: Tool steel and Aluminum<br>Conversion box: Polycarbonate |
| | | LC1216 | P 28 | 1 kN to 50 kN (100 kg to 5 t) | | | | ✓ | ✓ | | Tool steel |
| | | LCS15 | P 28 | 5 kN to 20 kN (500 kg to 2 t) | | | | ✓ | ✓ | | Stainless steel |
| | | TM / UM | P 29 | 500 N to 20 kN (50 kg to 2 t) | | | ✓ | ✓ | ✓ | | Tool steel |
| | | TP | P 29 | 200 N to 1 MN (20 kg to 100 t) | | | ✓ | ✓ | ✓ | ✓ | Tool steel |
| | | CP | P 29 | 200 N to 1 MN (20 kg to 100 t) | | | ✓ | ✓ | ✓ | ✓ | Tool steel |
| | | C2Z1 | P 30 | 5 kN to 200 kN (500 kg to 20 t) | | | | ✓ | ✓ | ✓ | Tool steel |
| | | C2X1 | P 30 | 300 kN to 5 MN (30 t to 500 t) | | | | | | ✓ | Tool steel |
| | | CM | P 30 | 50 kN to 200 kN (5 t to 20 t) | | | | | ✓ | ✓ | Tool steel |
| | | CMX | P 31 | 500 N to 20 kN (50 kg to 2 t) | | | ✓ | ✓ | ✓ | | Stainless steel |
| | | CMX-USB | P 31 | 500 N to 20 kN (50 kg to 2 t) | | | ✓ | ✓ | ✓ | | Load cell: Stainless steel<br>Conversion box: Polycarbonate |
| | | LCC07 | P 32 | 5 kN to 50 kN (500 kg to 5 t) | | | | ✓ | ✓ | | Stainless steel |
| | | LCC11 | P 33 | 100 kN to 300 kN (10 t to 30 t) | | | | | | ✓ | Load cell: Stainless steel<br>Mounting bracket: Tool steel |
| | | LCC12 | P 32 | 100 kN to 300 kN (10 t to 30 t) | | | | | | ✓ | Stainless steel |
| | | LCC20 | P 33 | 300 kN (30 t) | | | | | | ✓ | Load cell body: Tool steel<br>Load cell case: Stainless steel |
| | | LCCD20 | P 34 | 100 kN to 300 kN (10 t to 30 t) | | | | | | ✓ | Load cell body: Tool steel<br>Load cell case: Stainless steel |
| | Special Type | XY | P 34 | X:<br>5 kN to 10 kN (500 kg to 1 t)<br>Y:<br>2.5 kN to 5 kN (250 kg to 500 kg) | | | | ✓ | ✓ | | Tool steel |
| | Button Type | LCC21 | P 35 | 100 N to 1 kN (10 kg to 100 kg) | | | ✓ | ✓ | | | Stainless steel |
| | | LCCA21 | P 35 | 100 N to 1 kN (10 kg to 100 kg) | | | ✓ | ✓ | | | Stainless steel |
| | | LCCU21 | P 36 | 100 N to 1 kN (10 kg to 100 kg) | | | ✓ | ✓ | | | Load cell: Stainless steel |
| Complete Platform | | SB | P 37 | 15 kg to 200 kg | | | ✓ | ✓ | | | Weighing pan: Stainless steel<br>Base unit: Stainless steel & Aluminum |
| | | SB-SW | P 37 | 6 kg to 150 kg | | ✓ | ✓ | ✓ | | | Stainless steel |
| Weigh Modules | | AD-4212A | P 61 | 100 g to 1 kg | ✓ | ✓ | | | | | Stainless steel & Aluminum |
| | | AD-4212B | P 61 | 20 g to 300 g | ✓ | | | | | | Stainless steel & Aluminum |
| | | AD-4212C | P 61 | 50 g to 6 kg | ✓ | ✓ | | | | | Stainless steel & Zinc |
| | | AD-4212D | P 62 | 30 g to 300 g | ✓ | | | | | | Stainless steel & Aluminum |
| | | AD-4212L | P 62 | 50 g to 100 g | ✓ | | | | | | Aluminum |
| | | AD-4212F | P 62 | 500 g to 22 kg | ✓ | ✓ | ✓ | | | | Stainless steel & Aluminum |

| Dustproof/ waterproof | Mounting bracket included | OIML R60 certification / Class | CE compliant | Platform scale (single point) | Platform scale (multi-point) | Platform scale (pre-built platform) | Tank scale | Conveyor scale | Truck scale (weighbridge) | Checkweigher | Micro-dispensing device | Force measurement | Model | Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Applications | | | | | | | | | | | |
| IP54 | | | ✓ | ✓ | | | | | | ✓ | | | LCB03 | Beam Type | Load Cell |
| IP54 | | | ✓ | ✓ | | | | | | ✓ | | | LCB04 | | |
| IP67 | | | | ✓ | | | ✓ | | | ✓ | | | LCB05 | | |
| IP65/67 | | | | ✓ | | | ✓ | ✓ | | ✓ | | | LCB22 | | |
| IP65 | | | | ✓ | | | | | | ✓ | | | LCB25 | | |
| IP22 | | | | ✓ | | | | | | ✓ | | | LC4001 / LC4001A | | |
| IP22 | | | | ✓ | | | | | | ✓ | | | LC4101 | | |
| IP54 | | | | ✓ | | | | | | ✓ | | | LC4102 | | |
| IP54 | | | | ✓ | | | | | | ✓ | | | LC4103 | | |
| IP54 | | | | ✓ | ✓ | | | ✓ | | ✓ | | | LC4204 | | |
| IP67 | | | | | ✓ | | ✓ | | | | | ✓ | LC4221 | | |
| IP54 | | | | | ✓ | ✓ | | ✓ | | ✓ | | | LC4212 | | |
| IP67 | | | | | ✓ | | ✓ | | | | | | LC5206 | | |
| IP67 | | | | | ✓ | | ✓ | | | | | ✓ | U2Z1-A | | |
| IP67 | | | | | ✓ | | ✓ | ✓ | | | | | LBP | | |
| IP67 | | C3 | | | ✓ | | ✓ | | | | | | LCM13 | | |
| IP67 | ✓ | | | | ✓ | | ✓ | | | | | | LCM13-M | | |
| IP67 | | | | | ✓ | | ✓ | | | | | | LCM19 | | |
| IP67 | ✓ | | | | ✓ | | ✓ | | | | | | LCM19-M | | |
| IP54 | | | | | | | ✓ | | | | | ✓ | LC1122 | Tension / Compression Type | |
| IP54 | | | | | | | ✓ | ✓ | | | | ✓ | LC1205 | | |
| Load Cell: IP54 Conversion Box: IP65 | | | | | | | ✓ | ✓ | | | | ✓ | LC1205-USB | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | LC1216 | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | LCS15 | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | TM / UM | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | TP | | |
| IP67 | | | | | | | ✓ | ✓ | | | | | CP | | |
| IP67 | | | | | | | ✓ | ✓ | | | | | C2Z1 | | |
| IP67 | | | | | | | ✓ | ✓ | | | | | C2X1 | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | CM | | |
| IP67 | | | | | | | ✓ | ✓ | | | | ✓ | CMX | | |
| Load Cell: IP67 Conversion Box: IP65 | | | | | | | | | | | | ✓ | CMX-USB | | |
| IP67 | ✓ | | | | | | ✓ | ✓ | | | | | LCC07 | | |
| IP68 | ✓ | C4 | | | | | ✓ | ✓ | ✓ | | | | LCC11 | | |
| IP68 | ✓ | | | | | | ✓ | ✓ | | | | | LCC12 | | |
| IP68 | ✓ | C4 | ✓ | | | | ✓ | ✓ | ✓ | | | | LCC20 | | |
| IP68 | ✓ | C4/C6 | | | | | ✓ | ✓ | ✓ | | | | LCCD20 | | |
| IP54 | | | | | | | | | | | | ✓ | XY | Special Type | |
| IP64 | | | ✓ | | | | | | | | | ✓ | LCC21 | Button Type | |
| IP64 | | | | | | | | | | | | ✓ | LCCA21 | | |
| IP64 | | | ✓ | | | | | | | | | ✓ | LCCU21 | | |
| IP65 | | | | | | ✓ | | | | ✓ | | | SB | Complete Platform | |
| IP69K | | | ✓ | | | ✓ | | | | ✓ | | | SB-SW | | |
| IP54 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212A | Weigh Modules | |
| IP54 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212B | | |
| IP65 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212C | | |
| IP65 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212D | | |
| IP42 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212L | | |
| IP65 (Weighing unit only) | | | ✓ | | | | | | | | ✓ | | AD-4212F | | |

## Indicator Interface Compatibility / Applications

| Model | Product Page | Compatible Interfaces | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Standard Serial Output (20 mA current loop to connect with A&D peripheral devices) | RS-232C | RS-485 | BCD Output | CC-Link | Ethernet | Control I/O |
| AD-4411-EIP<br>AD-4411-PRT<br>AD-4411-ECT | P 47 | | | | | | Standard: EtherNet/IP<br>Standard: PROFINET<br>Standard: EtherCAT | |
| AD-4410 | P 47 | Standard | Standard:Supports Modbus RTU<br>AD4410-04:Supports Modbus RTU | AD4410-03: Supports Modbus RTU | | | | Standard:<br>3 inputs, 3 outputs |
| AD-4408C | P 48 | Standard | | | | Standard | | |
| AD-4407A | P 48 | AD4407-08 | AD4407-05<br>AD4407-08 | AD4407-03 | | | | AD4407-05:3 inputs<br>AD4407-08:1 input |
| AD-4406A | P 49 | AD4406-08 | AD4406-04<br>AD4406-05<br>AD4406-08 | AD4406-03 | | | | AD4406-05:3 inputs<br>AD4406-08:1 input |
| AD-4405A | P 49 | AD4405-08 | AD4405-05<br>AD4405-08 | AD4405-03 | | | | AD4405-05:3 inputs<br>AD4405-08:1 input |
| AD-4402<br>AD-4402D | P 50 | Standard | AD4402-04 | Standard:<br>Supports Modbus RTU<br>AD4402-03 | AD4402-01 | AD4402-20 | | Standard:11 inputs, 11 outputs<br>AD4402-05:<br>16 inputs, 16 outputs |
| AD-4401A | P 51 | Standard | AD4401A-04 | AD4401A-03: Supports Modbus RTU | AD4401A-01 | | AD4401A-23: Supports Modbus TCP | Standard:<br>6 inputs, 8 outputs |
| AD-4329A-DLC | P 52 | Standard | Standard | | | | | Standard:7 inputs |
| AD-4329A | P 52 | Standard | Standard | AD4329A-03 | AD4329A-01 | | | Standard:7 inputs |
| AD-4430A | P 53 | Standard | | | | | | Standard:6 inputs, 8 outputs |
| AD-4430B | P 53 | | | | Standard | | | |
| AD-4430C | P 53 | Standard | | | | Standard | | Standard:6 inputs, 8 outputs |
| AD-4430R | P 53 | Standard | | Standard:<br>Supports Modbus RTU | | | | Standard:6 inputs, 8 outputs |
| AD-4532B | P 54 | | AD4532B-04 | Standard:<br>Supports Modbus RTU | AD4532B-01 | | AD4532B-08 | Standard:9 inputs |
| AD-4531B | P 54 | | AD4530-040<br>AD4530-247 | AD4530-030<br>AD4530-237 | | | | Standard:<br>2 inputs, 2 outputs |
| AD-4530 | P 55 | | AD4530-040<br>AD4530-247 | AD4530-030<br>AD4530-237 | | | | Standard:3 inputs |
| AD-4541-V | P 55 | | | | | | | |
| AD-4541-I | P 55 | | | | | | | |
| AD-4412-CW<br>AD-4413-CW | P 56 | | Standard:<br>For printer and PC connection | Standard:<br>Supports Modbus RTU | | | Standard:<br>Supports Modbus TCP | Standard:11 inputs, 11 outputs<br>AD4412-05:<br>16 inputs, 16 outputs |
| AD-4404 | P 57 | Standard | AD4402-04 | Standard:<br>Supports Modbus RTU<br>AD4402-03 | AD4402-01 | | | Standard:11 inputs, 11 outputs<br>AD4404-05:<br>16 inputs, 16 outputs |
| FG-D-CWP<br>FG-D-ACWP | P 58 | | | | | | | |

| Compatible Interfaces | | | Remarks | Applications | | | | | | | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Relay output (Comparator) | Analog output | Others | | Platform scale | Hopper | Filling | Mixing | Check-weigher | Truck scale | Force measurement | |
| | | Standard:<br>USB for Maintenance | | | ✓ | ✓ | | | | | AD-4411-EIP<br>AD-4411-PRT<br>AD-4411-ECT |
| | AD4410-07:<br>4-20 mA | | Only one option can be installed.<br>Upon installation, current loop cannot be used. | ✓ | ✓ | ✓ | ✓ | | ✓ | | AD-4410 |
| | | | | | ✓ | ✓ | ✓ | | | | AD-4408C |
| AD4407-03:3 outputs<br>AD4407-05:3 outputs<br>AD4407-08:3 outputs | AD4407-07:<br>4-20 mA | | Only one option can be installed. | ✓ | | | | | | | AD-4407A |
| AD4406-03:3 outputs<br>AD4406-05:3 outputs<br>AD4406-08:3 outputs | AD4406-07:<br>4-20 mA | | Only one option can be installed. | ✓ | | | | | | | AD-4406A |
| AD4405-03:3 outputs<br>AD4405-05:3 outputs<br>AD4405-08:3 outputs | AD4405-07:<br>4-20 mA | | Only one option can be installed. | ✓ | | | | | | | AD-4405A |
| AD4402-02:<br>9 outputs | AD4402-07:<br>4-20 mA | | Up to three options can be installed. | | ✓ | ✓ | ✓ | | | | AD-4402<br>AD-4402D |
| | AD4401A-07:<br>4-20 mA | Standard:<br>Setpoint input (BCD)<br>AD4401-06:Setpoint unit | Only one of AD4401A-01, 03, 04, or 23 can be installed. | ✓ | ✓ | ✓ | ✓ | | ✓ | | AD-4401A |
| AD4329A-02:<br>3 outputs | | | | ✓ | | | | | ✓ | | AD-4329A-DLC |
| AD4329A-02:<br>3 outputs | AD4329A-07:<br>4-20 mA | | Only one of AD4329A-01, 03, and 07 can be installed. | ✓ | ✓ | | | | ✓ | | AD-4329A |
| | Standard:<br>4-20 mA, 2 channels | Standard:<br>USB for Maintenance | | | ✓ | ✓ | ✓ | | | | AD-4430A |
| | | | | | ✓ | ✓ | ✓ | | | | AD-4430B |
| | | Standard:<br>USB for Maintenance | | | ✓ | ✓ | ✓ | | | | AD-4430C |
| | | Standard:<br>USB for Maintenance | | | ✓ | ✓ | ✓ | | | | AD-4430R |
| Standard:<br>3 outputs | Standard: ± 10 V<br>AD4532B-07:<br>± 10 V and 4-20 mA | | Only one option can be installed. | | | | | | | ✓ | AD-4532B |
| AD4530-200:3 outputs<br>AD4530-237:3 outputs<br>AD4530-247:3 outputs | AD4530-007:<br>0-10 V and 4-20 mA<br>AD4530-237:<br>0-10 V and 4-20 mA<br>AD4530-247:<br>0-10 V and 4-20 mA | | Only one option can be installed. | | | | | | | ✓ | AD-4531B |
| AD4530-200:3 outputs<br>AD4530-237:3 outputs<br>AD4530-247:3 outputs | AD4530-007:<br>0-10 V and 4-20 mA<br>AD4530-237:<br>0-10 V and 4-20 mA<br>AD4530-247:<br>0-10 V and 4-20 mA | | Only one option can be installed. | | | | | | | ✓ | AD-4530 |
| | Standard:<br>-2 V to +2 V | | | | ✓ | ✓ | ✓ | | | ✓ | AD-4541-V |
| | Standard:<br>4-20 mA | | | | ✓ | ✓ | ✓ | | | ✓ | AD-4541-I |
| AD4412-02:<br>9 outputs | AD4412-07:<br>0-10 V and 4-20 mA | | AD4412-17: An option to expand AD4412-07 by up to 3 ch.<br>Only two of AD4412-02, 05, 07, and 17 can be installed. | | | | | ✓ | | | AD-4412-CW<br>AD-4413-CW |
| AD4402-02:<br>9 outputs | AD4402-07:<br>4-20 mA | | Up to three options can be installed. | ✓ | | | | ✓ | | | AD-4404 |
| | | FG-27CWP:<br>Bluetooth® communi-cation interface | | ✓ | | | | | | | FG-D-CWP<br>FG-D-ACWP |

# Connectors and Terminal Blocks Used for Indicator Power Supply and Interface

This table lists the types of connectors and terminal blocks used for the power supply and interface of indicators, along with the included accessories. Compatible products with these connectors and terminal blocks are available at stores and retailers that handle electrical components. If additional purchases are necessary, please refer to the listed manufacturer and model number.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4411 Standard Unit | Power - Connector | Yes | Euroblock 3P | MC 1,5/3-ST-3,81 | Phoenix Contact | P47 |
| | Load Cell Terminal - Connector | Yes | Euroblock 7P | MC 1,5/7-ST-3,81 | Phoenix Contact | |
| | Ethernet Interface | No | - | - | - | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4410 Standard Unit | Power - Connector | Yes | Power Cable (local specification) | Please contact us | A&D | P47 |
| | Load Cell Terminal - Connector | Yes | Metal Connector 7P (Female) | AX-NJC-207-PF | A&D | |
| | Serial Output (Current Loop) - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |
| | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Control I/O - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| AD4410-03 RS-485 | RS-485 - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |
| AD4410-04 RS-232C | RS-232C - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |
| AD4410-07 Analog output (4-20 mA) | Analog Output - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |

(NOTE) Only one option can be installed. Upon installation, current loop cannot be used.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4408C Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P48 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - M3 Crimp Terminal Block | No | - | - | - | |
| | CC-Link - Connector | Yes | Euroblock 5P | 721-105/037A-000 Misinsertion prevention key should be removed by the customer. | WAGO | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4407A Standard Unit | Direct Power Cable (Approx. 1.5 m) | Yes | | - | | P48 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| AD4407-03 RS-422/485 and Relay output | RS-485 - Connector | Yes | Euroblock 9P | BLA 9 SN OR (1282460000) | Weidmuller | |
| | Relay output (Comparator) - Connector | | | | | |
| AD4407-05 RS-232C, Relay output and Control input | RS-232C - Terminal Block | No | - | - | - | |
| | Relay output (Comparator) - Terminal Block | | | | | |
| | Control I/O - Terminal Block | | | | | |
| AD4407-07 Analog Output (4-20 mA) | Analog Output - Terminal Block | No | - | - | - | |
| AD4407-08 RS-232C, Current loop output, Relay output and Control input | RS-232C - Terminal Block | No | - | - | - | |
| | Relay output (Comparator) - Terminal Block | | | | | |
| | Control I/O - Terminal Block | | | | | |
| | Serial Output (Current Loop) - Terminal Block | | | | | |

(NOTE) Only one option can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4406A Standard Unit | Power - 2 AA batteries x 6 or Optional AC Adapter | No | AC adapter sold separately (local specification) | Please contact us | A&D | P49 |
| | Load Cell Terminal - Connector | Yes | Metal Connector 7P (Female) | AX-NJC-207-PF | A&D | |
| AD4406-03 RS-422/485 and Relay output | RS-485 - Connector | Yes | Euroblock 10P | BLA 10 SN OR (1282560000) | Weidmuller | |
| | Relay output (Comparator) - Connector | | | | | |
| | Analog Output - Power Adapter | Yes | AC Adapter (local specification) | Please contact us | A&D | |
| AD4406-04 RS-232C | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| AD4406-05 RS-232C, Relay output and Control input | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Relay output (Comparator) - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| | Control I/O - Connector | | | | | |
| AD4406-07 Analog Output (4-20 mA) | Analog Output - Connector | Yes | Euroblock 3P | MSTB 2,5/3-STF-5,08 | Phoenix Contact | |
| | Analog Output - Power Adapter | Yes | AC Adapter (local specification) | Please contact us | A&D | |
| AD4406-08 RS-232C, Current loop output, Relay output and Control input | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Relay output (Comparator) - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| | Control I/O - Connector | | | | | |
| | Serial Output (Current Loop) - Connector | | | | | |

(NOTE) Only one option can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4405A Standard Unit | Direct Power Cable (Approx. 1.5 m) | No | - | - | - | P49 |
| | Load Cell Terminal - Connector | Yes | Metal Connector 7P (Female) | AX-NJC-207-PF | A&D | |
| AD4405-03 RS-422/485 and Relay output | RS-485 - Connector | Yes | Connector 10P | BLA 10 SN OR (1282560000) | Weidmuller | |
| | Relay output (Comparator) - Connector | | | | | |
| | Analog Output - Power Adapter | Yes | AC Adapter (local specification) | Please contact us | A&D | |
| AD4405-05 RS-232C, Relay output and Control input | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Relay output (Comparator) - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| | Control I/O - Connector | | | | | |
| AD4405-07 Analog Output (4-20 mA) | Analog Output - Connector | Yes | PCB Connector 3P | MSTB 2,5/3-STF-5,08 | Phoenix Contact | |
| | Analog Output - Power Adapter | Yes | AC Adapter (local specification) | Please contact us | A&D | |
| AD4405-08 RS-232C, Current loop output, Relay output and Control input | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| | Relay output (Comparator) - Connector | | | | | |
| | Control I/O - Connector | | | | | |

(NOTE) Only one option can be installed.

This table lists the types of connectors and terminal blocks used for the power supply and interface of indicators, along with the included accessories. Compatible products with these connectors and terminal blocks are available at stores and retailers that handle electrical components. If additional purchases are necessary, please refer to the listed manufacturer and model number.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4402/AD-4402D Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P50 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - M3 Crimp Terminal Block | No | - | - | - | |
| | RS-485 - M3 Crimp Terminal Block | No | - | - | - | |
| | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-01 Parallel BCD output | BCD Output - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-02 Relay output | Relay output (Comparator) - Connector | Yes | Euroblock 11P | MSTB 2,5/11-STF-5,08 | Phoenix Contact | |
| AD4402-03 RS-422/485 | RS-485 - Connector | Yes | Euroblock 6P | MSTB 2,5/6-STF-5,08 | Phoenix Contact | |
| AD4402-04 RS-232C | RS-232C - D-Sub25P (Female) | No | | | | |
| AD4402-05 Parallel I/O | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-07 Analog output (4-20 mA) | Analog Output - Connector | Yes | Euroblock 3P | MSTB 2,5/3-STF-5,08 | Phoenix Contact | |
| AD4402-20 CC-Link | CC-Link - Connector | Yes | Euroblock 5P | F5210A-5P | FUJICON | |

(NOTE) Up to three options can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4401A Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P51 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | Yes | DIN Connector 8P (Male) | TCP0576-715267 | Hosiden | |
| | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4401A-01 Parallel BCD output | BCD Output - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4401A-03 RS-422/485 | RS-485 - M3 Crimp Terminal Block | No | - | - | - | |
| AD4401A-04 RS-232C | RS-232C - D-Sub25P (Female) | No | - | - | - | |
| AD4401A-23 Modbus TCP | RJ45 | No | - | - | - | |
| AD4401A-07 Analog output (4-20 mA) | Analog Output - M3 Crimp Terminal Block | No | - | - | - | |

(Note) Only one of AD4401A-01, 03, 04, or 23 can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4329A-DLC Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P52 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |
| | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Control I/O - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| AD4329A-02 Relay Output | Relay Output (Comparator) - M3 Crimp Terminal Block | No | - | - | - | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4329A Standard Unit | Power - Connector | Yes | Power Cable (local specification) | Please contact us | A&D | P52 |
| | Load Cell Terminal - Connector | Yes | Metal Connector 7P (Female) | AX-NJC-207-PF | A&D | |
| | Serial Output (Current Loop) - Connector | Yes | DIN Connector 7P (Male) | TCP0576-715267 | Hosiden | |
| | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | Control I/O - Connector | Yes | DIN Connector 8P (Male) | TCP0586-715267 | Hosiden | |
| AD4329A-01 Parallel BCD output | BCD Output - Connector | Yes | Amphenol 50P | 57-30500 | DDK Ltd. | |
| AD4329A-02 Relay Output | Relay Output (Comparator) - M3 Crimp Terminal Block | No | - | - | - | |
| AD4329A-03 RS-422/485 | RS-485 - M3 Crimp Terminal Block | No | - | - | - | |
| AD4329A-07 Analog output (4-20 mA) | Analog Output - M3 Crimp Terminal Block | No | - | - | - | |

(NOTE) Only one of AD4329A-01, 03, and 07 can be installed. Installing any of them will disable the standard RS-232C.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4430A Standard Unit | Power - Terminal Block | No | - | - | - | P53 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | Yes | Optional accessories available | - | - | |
| | Control I/O - Connector | Yes | Optional accessories available | - | - | |
| | Analog Output - Connector | Yes | Power Clamp Connector | 35505-6200-A00 GF | 3M | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4430B Standard Unit | Power - Connector | Yes | Euroblock 2P | FMC 1,5/2-ST-3,5 | Phoenix Contact | P53 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | BCD Output - Connector | Yes | Optional accessories available | - | - | |

This table lists the types of connectors and terminal blocks used for the power supply and interface of indicators, along with the included accessories. Compatible products with these connectors and terminal blocks are available at stores and retailers that handle electrical components. If additional purchases are necessary, please refer to the listed manufacturer and model number.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4430C Standard Unit | Power - Terminal Block | No | - | - | - | P53 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | No | Optional accessories available | - | - | |
| | CC-Link - Connector | Yes | Power Clamp Connector | 35505-6000-B0M GF | 3M | |
| | Control I/O - Connector | No | Optional accessories available | - | - | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4430R Standard Unit | Power - Terminal Block | No | - | - | - | P53 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - Connector | No | Optional accessories available | - | - | |
| | RS-485 - Connector | Yes | Power Clamp Connector | 35505-6200-A00 GF | 3M | |
| | Control I/O - Connector | No | Optional accessories available | - | - | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4532B Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P54 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Relay Output (Comparator) - M3 Crimp Terminal Block | No | - | - | - | |
| | RS-485 - M3 Crimp Terminal Block | No | - | - | - | |
| | Control I/O - M3 Crimp Terminal Block | No | - | - | - | |
| | Analog Output - M3 Crimp Terminal Block | No | - | - | - | |
| AD4532B-01<br>BCD parallel output | BCD Output - Connector | Yes | Connector, Connector Cover | Connector<br>N361J024AU<br>Connector Cover<br>N360C024B | OTAX | |
| AD4532B-04<br>RS-232C serial interface | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| AD4532B-07<br>DAV/DAI (analog voltage output/analog current output) | Analog Output - Connector | Yes | 1TM734-106 | 734-106 | WAGO | |
| AD4532B-08<br>Ethernet interface | Ethernet Interface | No | | | | |

(NOTE) Only one option can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4531B Standard Unit | Power - Connector | Yes | Euroblock 2P | MVSTBW 2,5/2-ST-5,08 | Phoenix Contact | P54 |
| | Load Cell Terminal - Connector | Yes | Euroblock 7P | MCVW 1,5/7-ST-3,5 | Phoenix Contact | |
| | Control I/O - Connector | Yes | Euroblock 6P | MCVW 1,5/6-ST-3,5 | Phoenix Contact | |
| AD4530-007<br>Analog output (0-10 V, 4-20 mA) | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| AD4530-030 RS-485 | RS-485 - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-040 RS-232C | RS-232C - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-200 Relay output | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| AD4530-237<br>RS-485 + Relay output + Analog output (0-10 V, 4-20 mA) | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| | RS-485 - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-247<br>RS-233C + Relay output + Analog output (0-10 V, 4-20 mA) | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| | RS-232C - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |

(NOTE) Only one option can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4530 Standard Unit | Power - Connector | Yes | Euroblock 2P | MVSTBW 2,5/2-ST-5,08 | Phoenix Contact | P55 |
| | Load Cell Terminal - Connector | Yes | Euroblock 9P | MVSTBW 2,5/9-ST-5,08 | Phoenix Contact | |
| | Control I/O - Connector | | | | | |
| AD4530-007<br>Analog output (0-10 V, 4-20 mA) | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| AD4530-030 RS-485 | RS-485 - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-040 RS-232C | RS-232C - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-200 Relay output | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| AD4530-237<br>RS-485 + Relay output + Analog output (0-10 V, 4-20 mA) | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| | RS-485 - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |
| AD4530-247<br>RS-233C + Relay output + Analog output (0-10 V, 4-20 mA) | Relay output (Comparator) - Connector | Yes | Euroblock 4P | MVSTBW 2,5/4-ST-5,08 | Phoenix Contact | |
| | Analog Output - Connector | Yes | Euroblock 3P | MVSTBW 2,5/3-ST-5,08 | Phoenix Contact | |
| | RS-232C - Connector | Yes | Euroblock 5P | MVSTBW 2,5/5-ST-5,08 | Phoenix Contact | |

(NOTE) Only one option can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4541-V Standard Unit | Power - Terminal Block | No | - | - | - | P55 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | Analog Output - Terminal Block | No | - | - | - | |

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4541-I Standard Unit | Power - Terminal Block | No | - | - | - | P55 |
| | Load Cell Terminal - Terminal Block | No | - | - | - | |
| | Analog Output - Terminal Block | No | - | - | - | |

This table lists the types of connectors and terminal blocks used for the power supply and interface of indicators, along with the included accessories. Compatible products with these connectors and terminal blocks are available at stores and retailers that handle electrical components. If additional purchases are necessary, please refer to the listed manufacturer and model number.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4412-CW / AD-4413-CW Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P56 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | RS-232C - D-Sub9P (Male) | No | - | - | - | |
| | RS-485 - Terminal Block | No | - | - | - | |
| | RJ45 | No | - | - | - | |
| | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4412-02 Relay output | Relay output (Comparator) - Connector | Yes | Euroblock 11P | FKC 2,5/11-STF-5,08 | Phoenix Contact | |
| AD4412-05 Parallel I/O | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4412-07 Analog output | Analog Output - Connector | Yes | Euroblock 12P | FKC 2,5/12-STF-5,08 | Phoenix Contact | |

(NOTE) Up to two options can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| AD-4404 Standard Unit | Power - M3 Crimp Terminal Block | No | - | - | - | P57 |
| | Load Cell Terminal - M3 Crimp Terminal Block | No | - | - | - | |
| | Serial Output (Current Loop) - M3 Crimp Terminal Block | No | - | - | - | |
| | RS-485 - M3 Crimp Terminal Block | No | - | - | - | |
| | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-01 Parallel BCD output | BCD Output - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-02 Relay output | Relay output (Comparator) - Connector | Yes | Euroblock 11P | MSTB 2,5/11-STF-5,08 | Phoenix Contact | |
| AD4402-03 RS-422/485 | RS-485 - Connector | Yes | Euroblock 6P | MSTB 2,5/6-STF-5,08 | Phoenix Contact | |
| AD4402-04 RS-232C | RS-232C - D-Sub25P (Female) | No | - | - | - | |
| AD4404-05 Parallel I/O | Control I/O - Connector | Yes | Connector, Connector Cover | Connector N361J024AU Connector Cover N360C024B | OTAX | |
| AD4402-07 Analog output (4-20 mA) | Analog Output - Connector | Yes | PCB Connector 3P | MSTB 2,5/3-STF-5,08 | Phoenix Contact | |

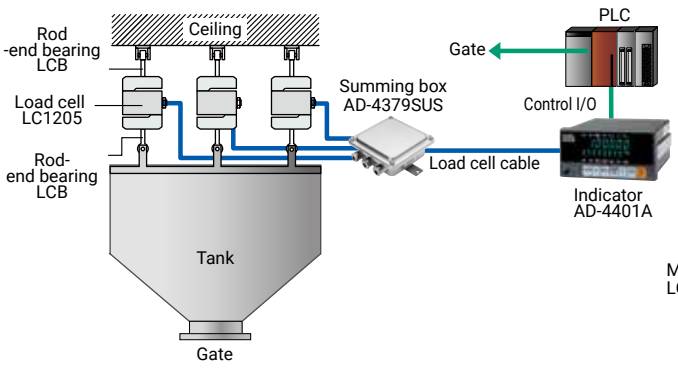
(NOTE) Up to three options can be installed.

| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| FG-D-CWP Standard Unit | Power - Direct Power Cable USB TypeA 3m | Yes | AC Adapter (local specification) | Please contact us | A&D | P58 |

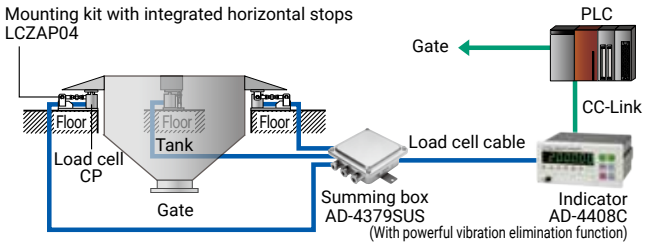
| Indicator Main Unit / Option | Connectors and Terminal Blocks | Included Accessories | Accessories | Model Number | Manufacturer | Product Page |
|---|---|---|---|---|---|---|
| FG-D-ACWP Standard Unit | Power - Connector | Yes | Power Cable (local specification) | Please contact us | A&D | P58 |

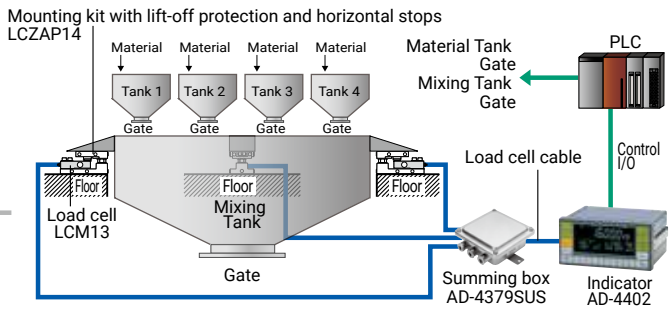
## Tank Weighing System

•Systems Using Tension Load Cells

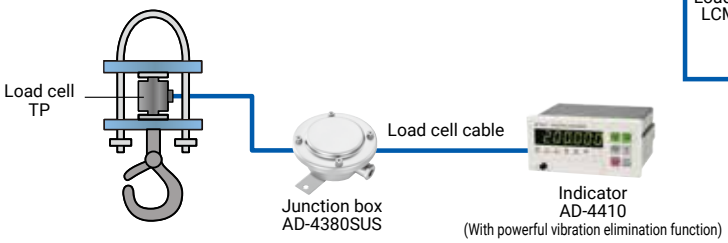



•Systems Using Compression Load Cells

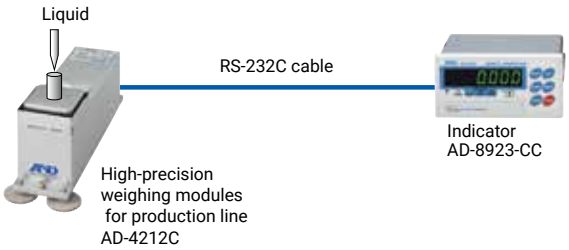


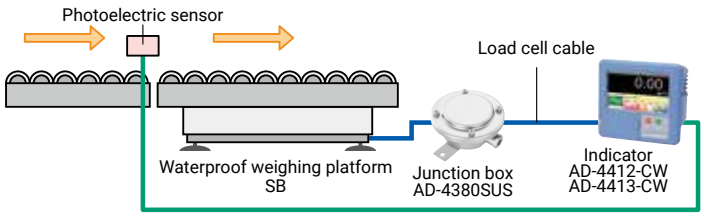

## Crane Scale



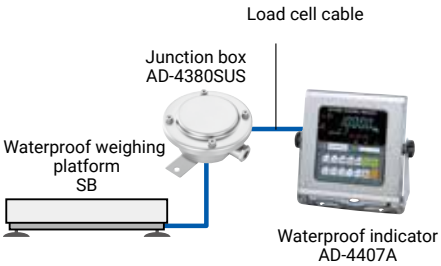

## Liquid Filling System



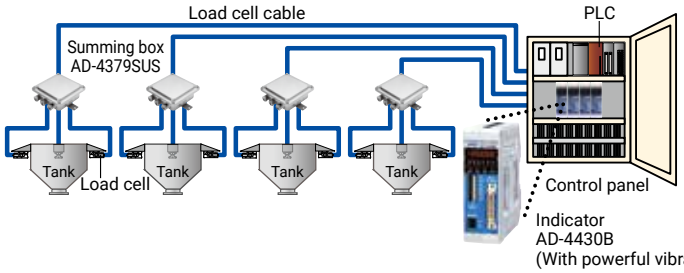

## Conveyor Scale / Checkweigher




## Waterproof Scale System

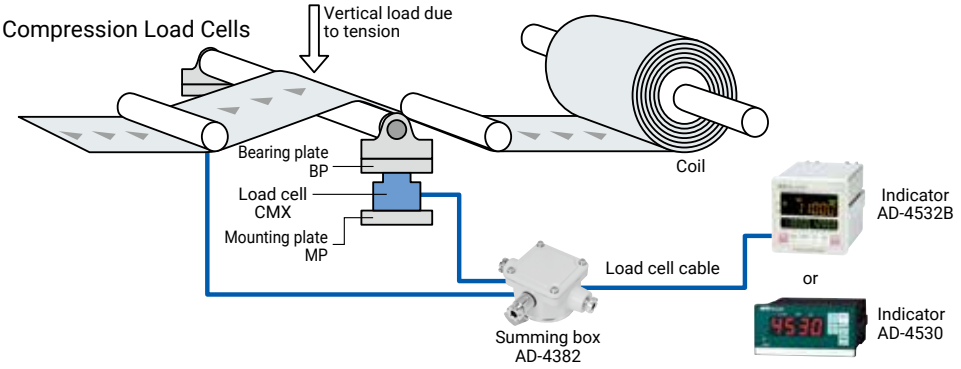



## Multi-row Packaging Weighing System

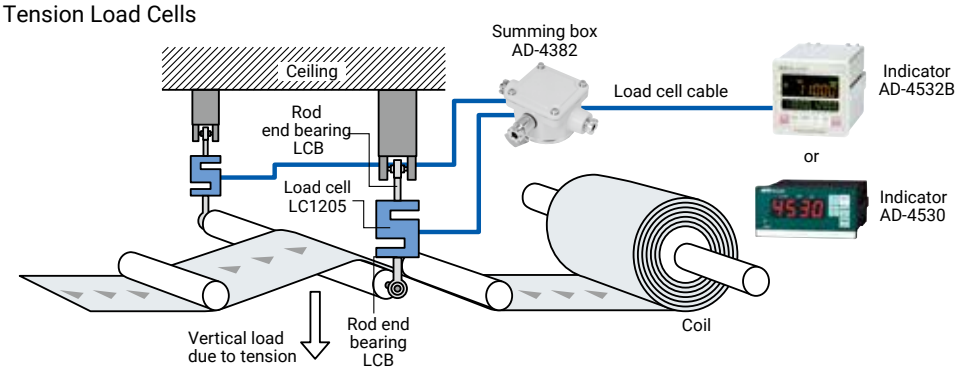


## Force Measuring System

•Systems Using Compression Load Cells



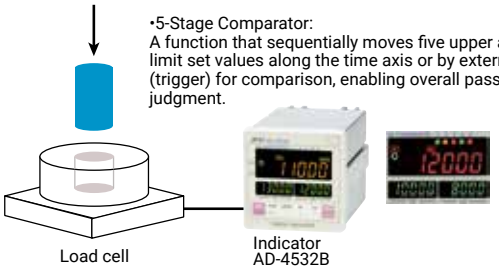

•Systems Using Tension Load Cells



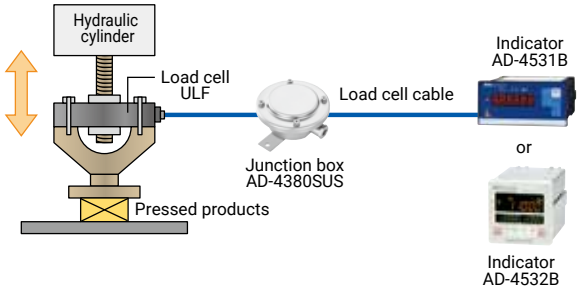

(NOTE) The applications in this catalog are expressed simply; mechanical safety is not taking into account.
Please examine mechanical safety measures in the actual system separately.

## Press-Fit Quality Judgment System

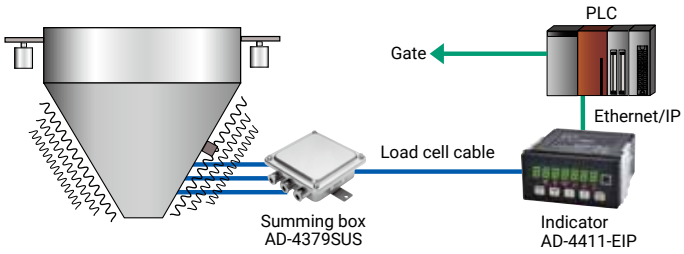
•Pressure Monitoring in the Press-Fit Process



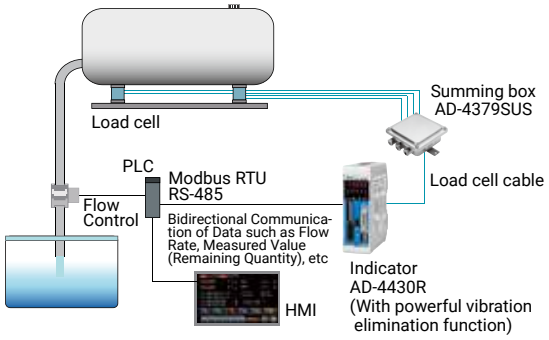

## Pressure Measurement System for Press Machines



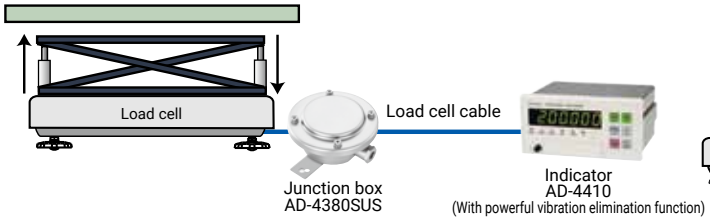

## Weighing While Vibrating



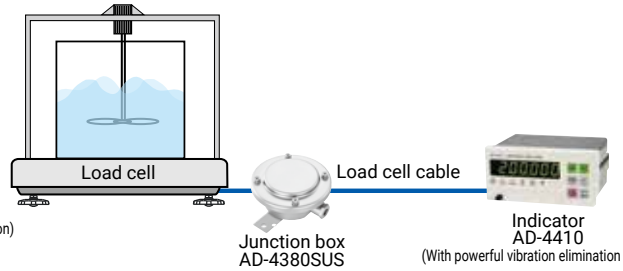

## Flow Control




## Weighing While Lifting and Lowering




## Weighing While Stirring



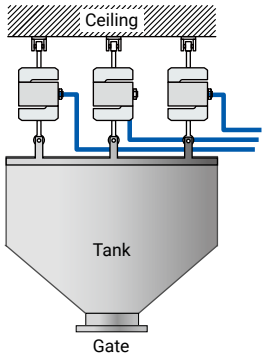
# How to Choose a Load Cell

When building a weighing system, the first important step is choosing the right load cell. As an example, we'll look at "hopper scales," which are used to weigh the contents of a tank.

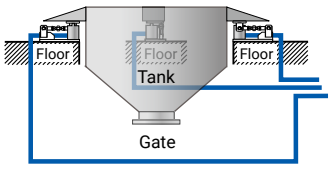
## Choosing the Right Load Cell Type

Here are three examples of "hopper scales" using different types of load cells: from left to right, an example using "tension load cells," an example using "compression load cells," and an example using "beam load cells." Using "tension load cells" can make the structure simpler. Using "compression load cells" or "beam load cells" can make the weighing system shorter and allow use of the space above the tank. This allows for the addition of other weighing equipment, as shown in the example below for the "beam type.
Please choose the type which best suits how the scale will be installed.

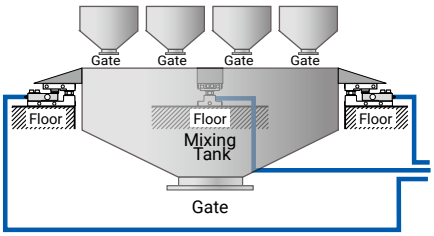
•Tension type




•Compression type

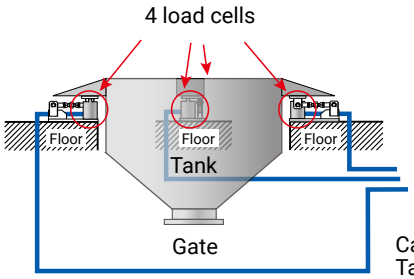



•Beam type




## Selection of Rated Capacity (When Using Four Load Cells)

After selecting the type of load cell, the next step is to select the rated capacity. As a calculation example, we will introduce a case using a compression load cell.
Consider a scenario where the mass of the weighed material is 8 tons, the mass of the tank is 3 tons, and the total weight of 11 tons is supported by four load cells.




Capacity (mass of the weighed material ): 8 t
Tare (mass of the tank): 3 t

The calculation formula for selecting the rated capacity is as follows:

$$L > \frac{(f_1 \times W_1 + W_2) \times f_2 \times f_3}{N}$$

$L$ : Rated capacity of the load cell to be determined

$N$ : Number of load cells used

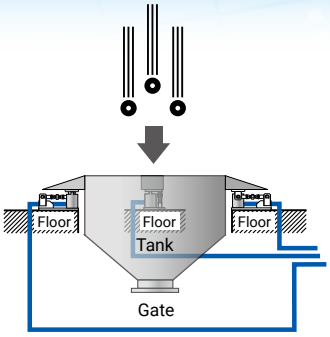
$W_1$ : Maximum mass of the weighed material (capacity)

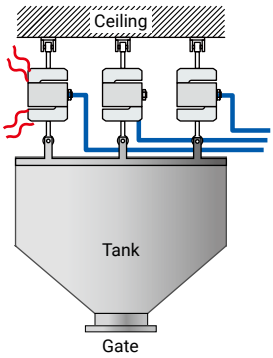
$W_2$ : Mass of the tank and other parts (tare)

$f_1$ : Dynamic coefficient (A coefficient that takes into account that a load greater than the input mass is applied due to a drop or other impact when weighing a material.)

$f_2$ : Eccentricity coefficient (a coefficient that accounts for the concentration of load on a particular load cell due to unbalanced loading of the weighed material in the tank)

$f_3$ : Unbalance coefficient (a coefficient that takes into account the fact that when supporting a device, it is stable when supported at 3 points but becomes unbalanced when supported at 4 or more points) 1.0 for N≤3, 1.2 for N≥4.




Now, let's substitute the values into the formula:

$L$ : Rated capacity of the load cell to be determined

$N$ : Number of load cells used = 4

$W_1$ : Maximum mass of the weighed material (capacity) = 8 t

$W_2$ : Mass of the tank and other parts (tare) = 3 t

$f_1$ : Dynamic coefficient, usually 1.3

$f_2$ : Eccentricity coefficient, usually 1.2

$f_3$ : Unbalance coefficient, $f_3$ = 1.2 for N≥4

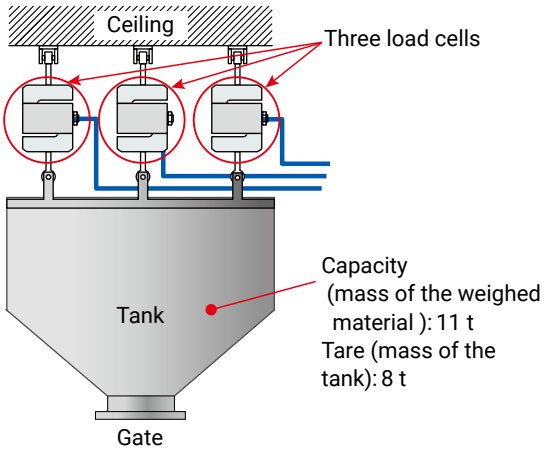
Substituting these values: $L > \dfrac{(1.3 \times 8 + 3) \times 1.2 \times 1.2}{4} = 4.824t \approx 5t$

Based on the result, the rated capacity of the load cell should be 5 tons.

**It is advisable to use four load cells with a rated capacity of 5 tons each.**

## Selection of Rated Capacity (When Using Three Load Cells)

Next, we will introduce the method for selecting rated capacity when using tension load cells. Consider a scenario where the mass of the weighed material is 11 tons, the mass of the tank is 8 tons, and the total weight of 19 tons is supported by three load cells.




Now, let's substitute the values into the formula.

$L$ : Rated capacity of the load cell to be determined

$N$ : Number of load cells used = 3

$W_1$ : Maximum mass of the weighed material (capacity) = 11 t

$W_2$ : Mass of the tank and other parts (tare) = 8 t

$f_1$ : Dynamic coefficient, usually 1.3

$f_2$ : Eccentricity coefficient, usually 1.2

$f_3$ : Unbalance coefficient $f_3$ = 1.0 for N≤3

Substituting these values: $L > \dfrac{(1.3 \times 11 + 8) \times 1.2 \times 1.0}{3} = 8.920t \approx 10t$

Based on the result, the rated capacity of the load cell should be 10 tons.

**It is advisable to use three load cells with a rated capacity of 10 tons each.**

## Consideration of Measurement Accuracy

After selecting the rated capacity of the load cell, the next step is to consider the measurement accuracy. Generally, the following formula is used to calculate accuracy, and the measurement accuracy is the value that takes into account the combined error, including the temperature effects on zero point and span.

$$\varepsilon > \sqrt{\varepsilon_C^2 + \left(\frac{\varepsilon_Z \times L \times N}{W_1} \times t\right)^2 + (\varepsilon_S \times t)^2}$$

Combined error — Temperature effect on zero point — Temperature effect on span

$\varepsilon$ : Measurement accuracy of the load cell (%F.S)
$\varepsilon_C$ : Combined error (%R.O)
$\varepsilon_Z$ : Temperature effect on zero point (%R.O./°C)
$\varepsilon_S$ : Temperature effect on span (%Load/°C)
$L$ : Rated capacity of the load cell
$N$ : Number of load cells used
$W_1$ : Maximum load to be measured
$t$ : Temperature variation range of the load cell (°C)

In the specifications of load cells, instead of "combined error," you may find terms such as linearity error, hysteresis error, and repeatability error. In such cases, use the following formula for the combined error calculation:

$$\varepsilon_C^2 = (\varepsilon_L^2 + \varepsilon_H^2 + \varepsilon_R^2)$$

$\varepsilon_L$ : Linearity error (%R.O.)
$\varepsilon_H$ : Hysteresis error (%R.O.)
$\varepsilon_R$ : Repeatability error (%R.O.)

Now, let's use the formula to calculate the accuracy. The configuration and conditions of the scale to be considered are as follows:

Load cell used : LC4102-K010
Scale capacity : 10 kg
Operating temperature : 20 ± 10 ° C
Temperature effect on zero point : Not considered, as the [Zero] key on the indicator is pressed during weighing.

From the specifications of the load cell LC4102-K010:

$\varepsilon_C$ : Combined error (%R.O) = 0.015
$\varepsilon_Z$ : Temperature effect on zero point (%R.O./°C) = 0.004(per 1°C)
$\varepsilon_S$ : Temperature effect on span (%Load/°C) = 0.0014 (per 1°C)

$L$ : Rated capacity of the load cell = 10
$N$ : Number of load cells used = 1
$W_1$ : Maximum load to be measured = 10
$t$ : Temperature variation range of the load cell (°C) = 0 for the effect on zero point (due to the [Zero] key), and 20 for the effect on span (considering the ±10°C range).

Substituting these values into the formula:

$$\varepsilon = \sqrt{0.015^2 + \left(\frac{0.004 \times 10 \times 1}{10} \times 0\right)^2 + (0.0014 \times 20)^2} = 0.0318\% < 0.0333\% \ (1/3{,}000)$$

The result is 0.0318%,

**which means a scale with an accuracy of 1/3,000 would be sufficient.**

This concludes the selection of load cells. By following these three steps, you can select the appropriate load cell:

STEP1 **Choosing the Right Load Cell Type**
STEP2 **Selection of Rated Capacity**
STEP3 **Consideration of Measurement Accuracy**

# Load Cell Output and Indicator Input Sensitivity

The following calculations can be performed to determine whether the desired minimum scale division can be displayed with the selected combination of load cell and indicator:

| | |
|---|---|
| Rated Capacity of Load Cell..... "A" (t, kg, g) | Maximum Capacity of Scale ..... "D" (t, kg, g) |
| Rated Output of Load Cell....."B" (mV/V) | Minimum Display Value of Scale....."E" (t, kg, g) |
| Excitation Voltage of Load Cell..... "C" (V) | Input Sensitivity of Indicator..... "F" ( μ V) |

1. Output voltage at the rated capacity of the load cell (X) (mV):
   X (mV) = B (mV/V) × C (V)

2. Output voltage at the maximum capacity of the scale (Y) (mV):
   Y (mV) = D / A × X (mV)

3. Output voltage at the minimum display value of the scale (Z) ( μ V):
   Z ( μ V) = E / D × Y (mV) x 1,000
   (Note: The factor of 1,000 is for unit conversion from mV to μ V)

4. Comparison of the output voltage at the minimum display value of the scale with the input sensitivity of the indicator:
   F ≤ Z
   If (Z) is greater than (F), the display is possible.

**Example:** Combination of Load Cell LC1205-K500 and Indicator AD-4408C
To determine if a minimum display value of 0.01 kg is possible for a scale with a maximum capacity of 150 kg:

| | |
|---|---|
| A = 509.9 kg | 1. 2.0394 (mV/V) × 5 (V) = 10.197 (mV) |
| B = 2.0394 mV/V | 2. 150.00 (kg) / 509.9 (kg) × 10.197 (mV) ≈ 3 (mV) |
| C = 5 V | 3. 0.01 (kg) / 150.00 (kg) × 3 (mV) × 1,000 = 0.2 ( μ V) |
| D = 150.00 kg | 4. 0.15 ( μ V) ≤ 0.2 ( μ V) |
| E = 0.01 kg | |
| F = 0.15 μ V | |

**Therefore, 0.01 kg is greater than the input sensitivity of the indicator and can be displayed.**

Note: When using three load cells, multiply (A) by three. Also, you can change the maximum capacity and minimum display value of the scale as needed for calculations.

**Caution:** This calculation determines whether the minimum scale division can be displayed on the indicator based on electrical conditions. Whether a stable display can be obtained depends on mechanical conditions such as the structure of the equipment to which the load cell is attached, the method of attaching the load cell, the equipment environment, and measurement conditions. Additionally, the above does not consider accuracy.

# LOAD CELL

## Structure and Composition of Load Cells

The general structure of a load cell consists of strain gauges, a spring element, a diaphragm, a base, a case, and a terminal box. The spring element can be broadly classified into the following shapes:

1. Beam
2. Column
3. Ring
4. Diaphragm

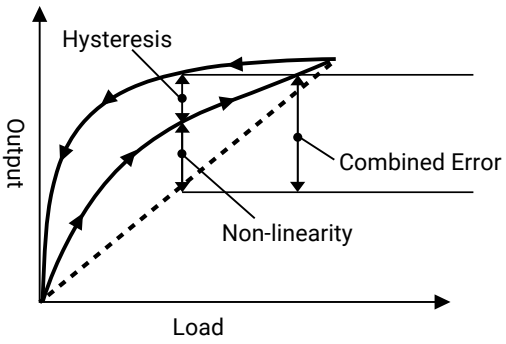
Materials suitable for low or high loads are used according to the application and structure.

Typically, four strain gauges are bonded to form a Wheatstone bridge, converting the "strain" proportional to the force applied to the spring element into an electrical output.

The protective case housing the spring element is welded with the diaphragm, base, and terminal box, and filled with inert gas to prevent internal insulation degradation. The output signal is extracted using a four-core shielded cable from the terminal box, and load calibration is performed using actual weights.

## Load Cell Terminology

- **Rated Capacity :** The maximum load that a load cell can measure while maintaining its specifications.
- **Rated Output :** The value obtained by subtracting the no-load output from the load output at the rated capacity, usually expressed in output per 1 V of excitation voltage (mV/V). Also called Span.
- **Safe Overload :** The load that can be applied without causing permanent changes beyond the specifications, expressed as a percentage of the rated load.
- **Temperature Effect on Zero Point :** The change in zero point of the load cell due to changes in ambient temperature, expressed as a percentage of the rated output.
- **Temperature Effect on Span :** The change in rated output due to changes in ambient temperature.
- **Non-linearity :** The maximum deviation from the straight line connecting the no-load point and the rated capacity point (output) on the calibration curve, measured only during load increase, expressed as a percentage of the rated output.
- **Hysteresis :** The maximum difference in load cell output between increasing and decreasing loads.
- **Combined Error :** The maximum deviation from the straight line connecting the no-load point and the rated capacity point on the calibration curve, including both load increase and decrease.
- **Recommended Excitation Voltage :** The recommended voltage applied to the input terminals of the load cell.
- **Maximum Excitation Voltage :** The maximum voltage that can be applied to the input terminals of the load cell.




- **Zero Balance :** The output voltage of the load cell when no load is applied and the rated excitation voltage is applied, usually expressed as a percentage of the rated output.
- **Input Terminal Resistance :** The resistance of the input terminals of the load cell measured with no load and the output terminals open.
- **Output Terminal Resistance :** The resistance of the output terminals of the load cell measured with no load and the input terminals open.
- **Insulation Resistance :** The DC resistance between the load cell circuit and the load cell body.
- **Natural Frequency :** The frequency of free vibration of the load cell when no load is applied.
- **Allowable Moment :** The maximum bending moment that can be applied without causing permanent changes beyond the specifications.
- **Deflection Amount :** The amount of change when the rated load is applied to the load cell. (For single point load cells, this is the displacement amount at the tip when a load is applied to the center of the load cell.)

## Single-point aluminum load cell

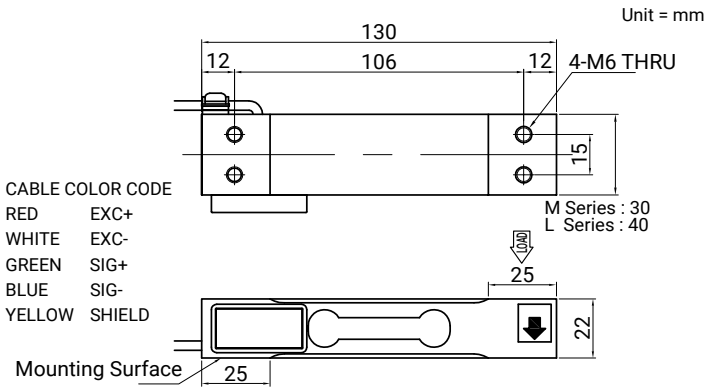
# LCB03 Series

CE 30 N (3.059 kg) to 600 N (61.18 kg)

Compact, lightweight, high-performance.
Simplify system integration and scale fabrication, driving cost reduction.
Versatile for use in both tension and compression applications.

Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment | Weight |
|---|---|---|---|---|---|
| LCB03-K003M | 30 N (3.059 kg) | 0.34 mm | 142.5 Hz | 1.061 N m | 0.23 kg |
| LCB03-K006M | 60 N (6.118 kg) | | 215 Hz | 2.121 N m | |
| LCB03-K010M | 100 N (10.20 kg) | | 285 Hz | 3.606 N m | |
| LCB03-K015M | 150 N (15.30 kg) | | 337 Hz | 5.303 N m | |
| LCB03-K020M | 200 N (20.39 kg) | | 387.5 Hz | 7.106 N m | |
| LCB03-K025L | 250 N (25.49 kg) | 0.26 mm | 397 Hz | 8.910 N m | 0.3 kg |
| LCB03-K030L | 300 N (30.59 kg) | | 445 Hz | 10.61 N m | |
| LCB03-K035L | 350 N (35.69 kg) | | 452.5 Hz | 12.41 N m | |
| LCB03-K060L | 600 N (61.18 kg) | | 570 Hz | 21.21 N m | |




| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±10% |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.02 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±5 % of R.O. |
| Input terminal resistance | 420 Ω±30 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 2000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.023 % of R.O./10 °C |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ3.5/0.4 m |
| Maximum platform size | 300 x 300 mm |
| Material | Aluminum |
| Dustproof/waterproof | IP54 |

## Single-point aluminum load cell

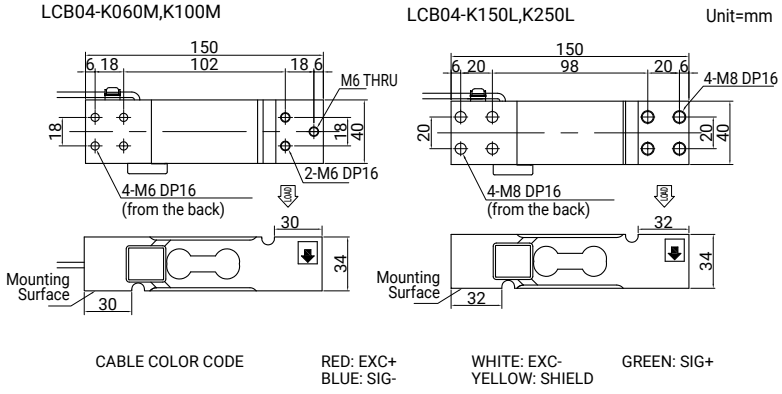
# LCB04 Series

CE 600 N (61.18 kg) to 2.5 kN (254.9 kg)

Compact, lightweight, high-performance.
Simplify system integration and scale fabrication, driving cost reduction.
Versatile for use in both tension and compression applications.

Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment | Weight |
|---|---|---|---|---|---|
| LCB04-K060M | 600 N (61.18 kg) | 0.24 mm | 447.5 Hz | 28.28 N m | 0.5 kg |
| LCB04-K100M | 1 kN (102.0 kg) | | 525 Hz | 47.23 N m | |
| LCB04-K150L | 1.5 kN (153.0 kg) | 0.18 mm | 695 Hz | 70.71 N m | |
| LCB04-K250L | 2.5 kN (254.9 kg) | | 760 Hz | 117.95 N m | |



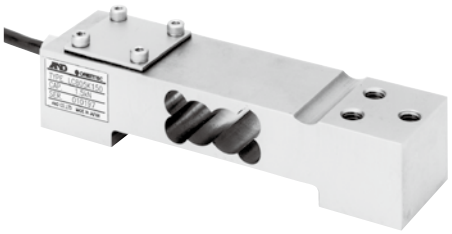

| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±10% |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.02 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±5 % of R.O. |
| Input terminal resistance | 420 Ω±30 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 2000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.023 % of R.O./10 °C |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ3.5/1.5 m |
| Maximum platform size | 400 x 400 mm |
| Material | Aluminum |
| Dustproof/waterproof | IP54 |

## Single-point stainless steel load cell

# LCB05 Series

300 N (30.59 kg) to 1.5 kN (153.0 kg)

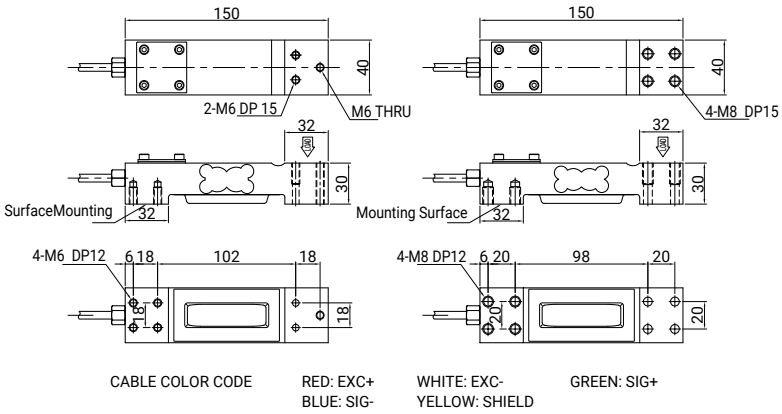
Hermetically sealed stainless steel construction, pre-adjusted at four corners.
Simplify fabrication of scales; suitable for harsh environments.
Accommodates platforms up to 400 X 400 mm. Versatile for use in both tension and compression applications.



Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment | Weight |
|---|---|---|---|---|---|
| LCB05-K030 | 300 N (30.59 kg) | 0.20 mm | 240 Hz | 14.14 N m | 1.1 kg |
| LCB05-K060 | 600 N (61.18 kg) | | 340 Hz | 28.28 N m | |
| LCB05-K150 | 1.5 kN (153.0 kg) | | 475 Hz | 70.71 N m | |

LCB05-K030/-K060 LCB05-K150 Unit=mm




| | |
|---|---|
| Rated output (R.O.) | 2 mV/V+15 %-0 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±5 % of R.O. |
| Input terminal resistance | Approx. 390 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 500 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.04 % of R.O./10 °C |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ5.6/3 m |
| Maximum platform size | 400 x 400 mm |
| Material | Stainless steel |
| Dustproof/waterproof | IP67 |

## Single-point load cell with built-in overload stopper

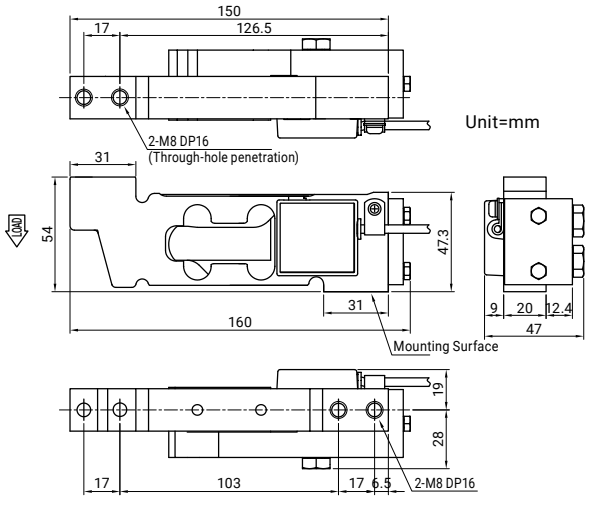
# LCB22 Series

58.84 N (6 kg) to 588.4 N (60 kg)

Extremely durable structure built to withstand excessive loads and impacts.

Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment | Weight |
|---|---|---|---|---|---|
| LCB22-K006 | 58.84 N (6 kg) | 0.17 mm | 260 Hz | 4.62 N m | 0.5 kg |
| LCB22-K010 | 98.07 N (10 kg) | | 340 Hz | 7.69 N m | |
| LCB22-K015 | 147.1 N (15 kg) | | 410 Hz | 11.5 N m | |
| LCB22-K020 | 196.1 N (20 kg) | | 450 Hz | 15.4 N m | |
| LCB22-K030 | 294.2 N (30 kg) | | 510 Hz | 23.1 N m | |
| LCB22-K060 | 588.4 N (60 kg) | | 620 Hz | 46.2 N m | |



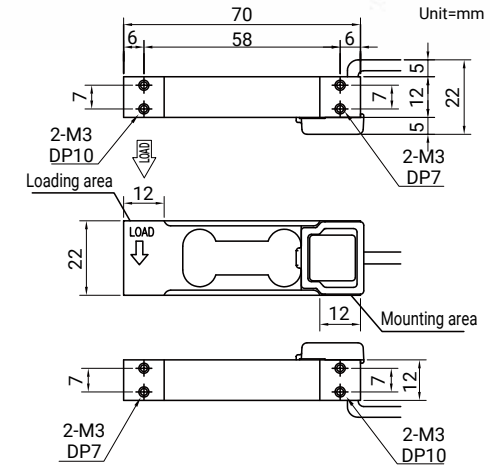

| | |
|---|---|
| Rated output (R.O.) | 1.5 mV/V±5 % |
| Safe overload | 500 % of R.C. |
| Ultimate overload | 1,000 % of R.C. |
| Combined error | 0.02 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±5 % of R.O. |
| Input terminal resistance | 1.13 kΩ±100 Ω |
| Output terminal resistance | 1 kΩ±10 Ω |
| Insulation resistance | Greater than 2,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.014 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.011 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ4/1.5 m |
| Maximum platform size | 400 x 400 mm |
| Material | Aluminum |
| Dustproof/waterproof | IP65, IP67 (Cannot withstand strong water flow) |

## Single-point compact load cell/stand scale type

# LCB25 Series NEW

4.903 N (500 g) to 29.42 N (3 kg)

Compact and light for installation in limited space
Simple design for cost reduction, ideal for low capacity scales.
Moisture-proof, four-corner adjusted, tension and compression load cell.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+
BLUE: SIG- YELLOW: SHIELD

### Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment |
|---|---|---|---|---|
| LCB25-G500 | 4.903 N (500 g) | 0.14 mm | 238 Hz | 0.12 N m |
| LCB25-K001 | 9.807 N (1 kg) | 0.28 mm | | 0.23 N m |
| LCB25-K002 | 19.61 N (2 kg) | | 356 Hz | 0.46 N m |
| LCB25-K003 | 29.42 N (3 kg) | | 447 Hz | 0.69 N m |

| Model | LCB25-G500 | LCB25-K001,K002,K003 |
|---|---|---|
| Rated output (R.O.) | 1 mV/V ±10 % | 2 mV/V ±10 % |
| Safe overload | 300 % of R.C. | 150 % of R.C. |
| Ultimate overload | 400 % of R.C. | 200 % of R.C. |
| Combined error | 0.02 % of R.O. | |
| Recommended excitation voltage | Up to 12 VDC | |
| Maximum excitation voltage | 25 VDC | |
| Zero balance | 10 % of R.O. | |
| Input terminal resistance | 1.17 kΩ ±100 Ω | |
| Output terminal resistance | 1 kΩ ±10 Ω | |
| Insulation resistance | Greater than 2,000 MΩ at 50 VDC | |
| Temperature compensation range | -10 °C to 40 °C | |
| Temperature effect on zero point | 0.023 % of R.O./10 °C | |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. | |
| Cable thickness/length | Φ3.5/40 cm | |
| Maximum platform size | 200 x 200 mm | |
| Material | Aluminum | |
| Dustproof/waterproof | IP65 | |
| Weight | 40g | |

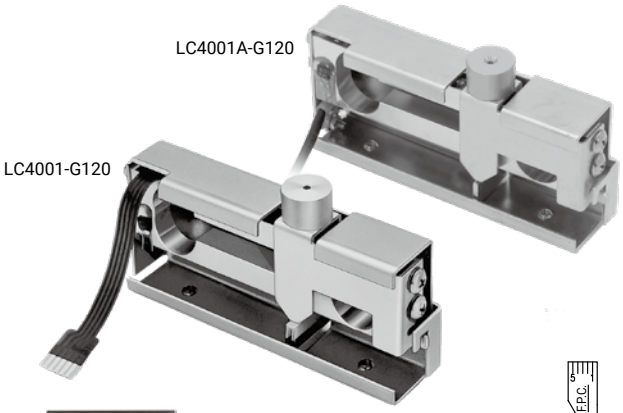
## Single-point load cell with ultra-high sensitivity for small scales

# LC4001 / LC4001A

1.2 N (122.4 g)

Compact, lightweight; metal overload stopper built in.
Ultra-high sensitivity; readability as high as 10 mg*

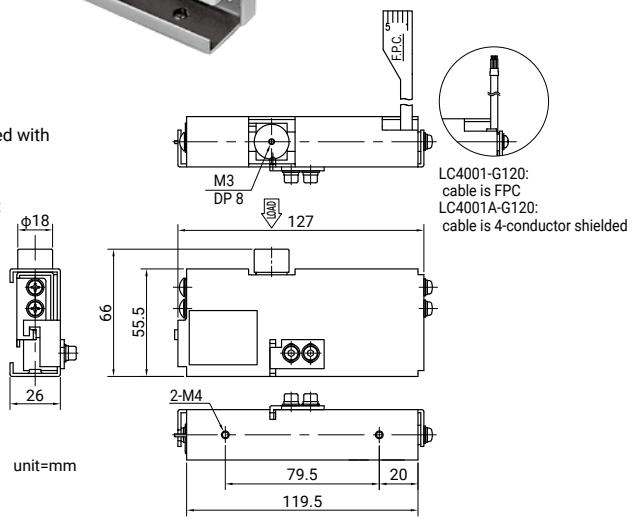
* The minimum display achievable when connected to an indicator whose input sensitivity is 0.15 µV/d or less. (Instability due to the combined error is not considered)




Connector supplied with LC4001-G120

| LC4001-G120 FPC pin assignment | |
|---|---|
| 1. | EXC- |
| 2. | SIG- |
| 3. | EXC+ |
| 4. | SIG+ |
| 5. | N.C. |

| LC4001A-G120 Cable color code | |
|---|---|
| RED | EXC+ |
| WHITE | EXC- |
| GREEN | SIG+ |
| BLUE | SIG- |
| YELLOW | SHIELD |




LC4001-G120: cable is FPC
LC4001A-G120: cable is 4-conductor shielded

| Rated output (R.O.) | 0.4079 mV/V or greater |
|---|---|
| Safe overload | 300 % of R.C. |
| Ultimate overload | 1,000 % of R.C. |
| Combined error | 0.015 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | 40±25 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 500 MΩ at 50 VDC |
| Temperature compensation range | -5 °C to 35 °C |
| Temperature effect on zero point | 0.14 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C Typ. |
| Cable thickness/length | F.P.C.75 mm (LC4001-G120) Φ 4/1.5 m (LC4001A-G120) |
| Maximum platform size | 120 x 120 mm |
| Material | Aluminum |
| Dustproof/waterproof | IP22 |

### Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment | Weight |
|---|---|---|---|---|---|
| LC4001-G120 | 1.2 N (122.4 g) | 0.24 mm | 50 Hz | 0.017 N m | 270 g |
| LC4001A-G120 | | | | | 300 g |

Single-point aluminum load cell

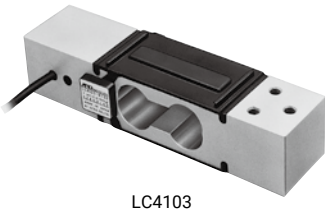
# LC4101 / LC4102 / LC4103 / LC4204 Series

For making small to medium-sized scales
For both tension and compression

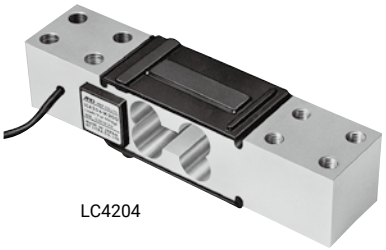
6 N (611.8 g) to 6 kN (611.8 kg)

LC4101

LC4102



LC4103



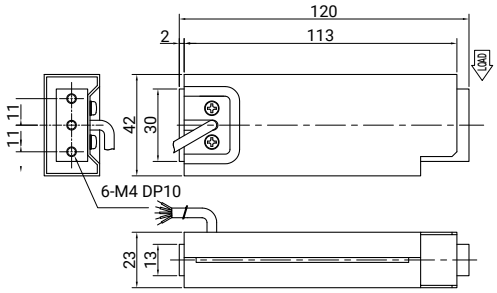
LC4204

## Specifications

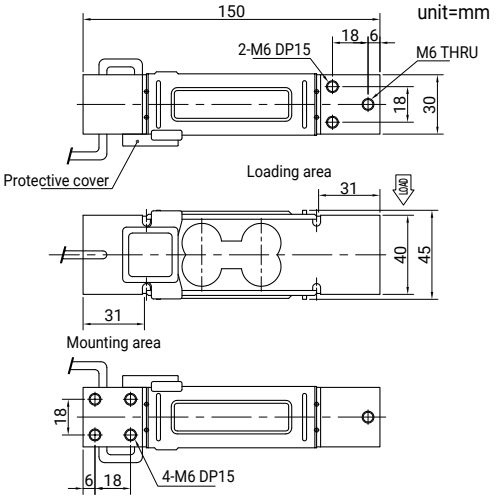
| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Allowable moment |
|---|---|---|---|---|
| LC4101-G600 | 6 N (611.8 g) | 0.24 mm | 100 Hz | 0.212 N m |
| LC4101-K1.5 | 15 N (1.530 kg) | | 175 Hz | 0.530 N m |
| LC4101-K003 | 30 N (3.059 kg) | | 265 Hz | 1.061 N m |
| LC4101-K006 | 60 N (6.118 kg) | | 390 Hz | 2.121 N m |
| LC4101-K015 | 150 N (15.30 kg) | | 615 Hz | 5.303 N m |
| LC4102-K010 | 100 N (10.20 kg) | 0.17 mm | 275 Hz | 4.808 N m |
| LC4102-K015 | 150 N (15.30 kg) | | 320 Hz | 7.071 N m |
| LC4102-K030 | 300 N (30.59 kg) | | 435 Hz | 14.14 N m |
| LC4102-K060 | 600 N (61.18 kg) | | 540 Hz | 28.28 N m |
| LC4102-K150 | 1.5 kN (153.0 kg) | | 665 Hz | 70.71 N m |
| LC4103-K060 | 600 N (61.18 kg) | 0.21 mm | 385 Hz | 36.06 N m |
| LC4103-K100 | 1 kN (102.0 kg) | | 480 Hz | 60.21 N m |
| LC4103-K150 | 1.5 kN (153.0 kg) | | 550 Hz | 90.14 N m |
| LC4204-K300 | 3 kN (305.9 kg) | 0.33 mm | 450 Hz | 230.49 N m |
| LC4204-K600 | 6 kN (611.8 kg) | | 540 Hz | 460.98 N m |

| Model | LC4101 | LC4102 | LC4103 | LC4204 |
|---|---|---|---|---|
| Rated output (R.O.) | 1.0197 mV/V+15 %-0 % | | | 1.5296 mV/V± 0.2 % |
| Safe overload | 300 % of R.C. | | | 200 % of R.C. |
| Ultimate overload | 400 % of R.C. | | | 250 % of R.C. |
| Combined error | 0.015 % of R.O. | | | |
| Recommended excitation voltage | 5 to 12 VDC | | | |
| Maximum excitation voltage | 15 VDC | | | |
| Zero balance | 20±5 % of R.O. | | | |
| Input terminal resistance | Approx. 400 Ω | | | |
| Output terminal resistance | 350±5 Ω | | | |
| Insulation resistance | Greater than 500 MΩ at 50 VDC | | | |
| Temperature compensation range | -10 °C to 40 °C | | | |
| Temperature effect on zero point | 0.04 % of R.O./10 °C | | | |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. | | | |
| Cable thickness/length | ϕ4/1.5 m | | ϕ6/2 m | ϕ6/5 m |
| Maximum platform size | 300 x 300 mm | 400 x 400 mm | 400 x 600 mm | 600 x 700 mm |
| Material | Aluminum | | | |
| Dustproof/waterproof | IP22 | IP54 | | |
| Weight | 0.12 kg | 0.4 kg | 1.2 kg | 1.9 kg (-K300)<br>2.0 kg (-K600) |

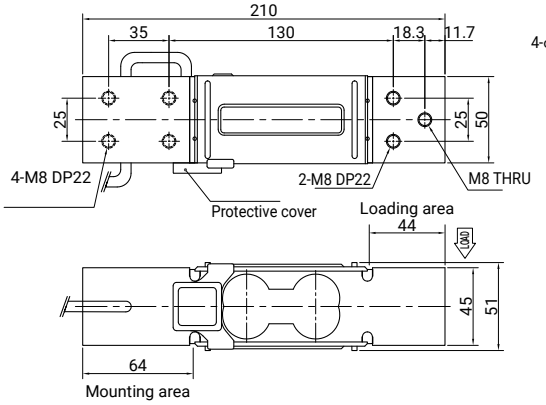
LC4101



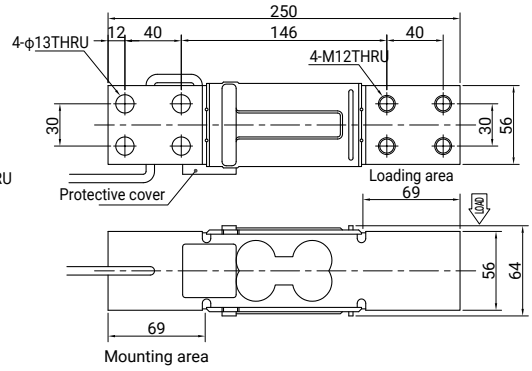

LC4102




LC4103




LC4204



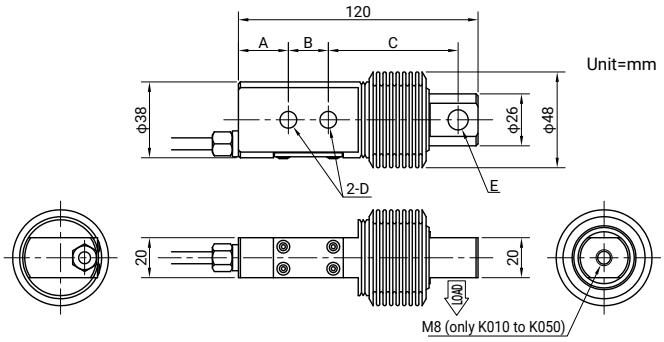

CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+
BLUE: SIG- YELLOW: SHIELD

## Hermetically sealed, beam type stainless steel load cell

# LC4221 Series

100 N (10.20 kg) to 3 kN (305.9 kg)

Durable stainless steel, compact, lightweight. Reliable in tough conditions for both tension and compression. Ideal for scales and tanks.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

| Model | A | B | C | D | E |
|---|---|---|---|---|---|
| LC4221-K010, K020, K050 | 27 | 18 | 65 | φ6.6 | φ8.1 |
| LC4221-K100, K200, K300 | 25 | 20 | 65 | φ8.4 | φ10.1 |

Unit=mm

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LC4221-K010 | 100 N (10.20 kg) |
| LC4221-K020 | 200 N (20.39 kg) |
| LC4221-K050 | 500 N (50.99 kg) |
| LC4221-K100 | 1 kN (102.0 kg) |
| LC4221-K200 | 2 kN (203.9 kg) |
| LC4221-K300 | 3 kN (305.9 kg) |

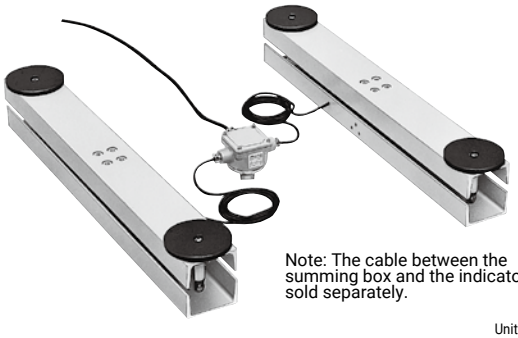
| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.2 % |
| Safe overload | 200 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.05 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.07 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C Typ. |
| Cable thickness/length | φ6/5 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP67 |
| Weight | 0.7 kg |
| Options | Summing box (p.38) , Junction box (p.38) |

## Bar-type load cell set

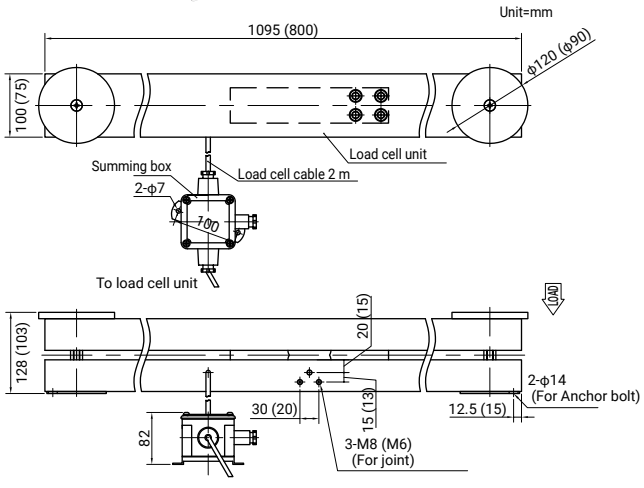
# LC4212 Series

3 kN (305.9 kg) to 12 kN (1.224 t)

Low-cost, 2 load cell system with a summing box included.
Simply place the load platform on the load cells to create a platform scale.



Note: The cable between the summing box and the indicator is sold separately.




( ), Dimensions of LC4212-K300 only.

CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+
BLUE: SIG- YELLOW: SHIELD

### Specifications

| Model | Rated capacity (R.C.) | Weight |
|---|---|---|
| LC4212-K300 | 3 kN (305.9 kg) | 35 kg |
| LC4212-K600 | 6 kN (611.8 kg) | 58 kg |
| LC4212-T1.2 | 12 kN (1.224 t) | |

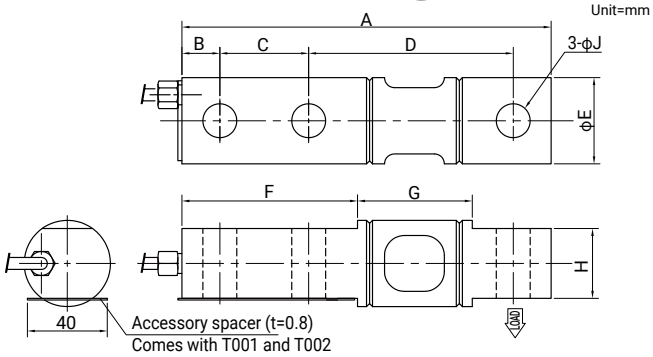
| Model | LC4212-K300 | LC4212-K600,-T1.2 |
|---|---|---|
| Rated output (R.O.) | 1.0197 mV/V+15 %-0 % | 1.5296 mV/V±0.2 % |
| Safe overload | 200 % of R.C. | |
| Ultimate overload | 400 % of R.C. | 250 % of R.C. |
| Combined error | 0.015 % of R.O. | |
| Recommended excitation voltage | 5 to 12 VDC | |
| Maximum excitation voltage | 15 VDC | |
| Zero balance | 25±10 % of R.O. | |
| Input terminal resistance | Approx. 200 Ω | |
| Output terminal resistance | 175±5 Ω | |
| Insulation resistance | Greater than 500 MΩ at 50 VDC | |
| Temperature compensation range | -10 °C to 40 °C | |
| Temperature effect on zero point | 0.04 % of R.O./10 °C | |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. | |
| Maximum platform size | 900 x MAX2,000 mm (changeable) | 1,200 x MAX2,000 mm (changeable) |
| Dustproof/ waterproof | IP54 | |

## Beam-type load cells ideal for floor scales and tank scales

# LC5206 Series

3 kN (305.9 kg) to 20 kN (2.039 t)

Easy-to-install load cells suitable for floor scales and tank scales.
Enhanced impact resistance. Versatile for use in both tension and compression applications.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

| Model | A | B | C | D | ΦE | F | G | H | ΦJ |
|---|---|---|---|---|---|---|---|---|---|
| LC5206-K300,K500 | 137 | 16 | 25 | 83 | 31 | 52 | 55 | 19 | 10.5 |
| LC5206-T001,T002 | 185 | 19 | 44.5 | 102.5 | 43.2 | 88 | 57.5 | 35 | 17 |

Unit=mm

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LC5206-K300 | 3 kN (305.9 kg) |
| LC5206-K500 | 5 kN (509.9 kg) |
| LC5206-T001 | 10 kN (1.020 t) |
| LC5206-T002 | 20 kN (2.039 t) |

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.2 % |
| Safe overload | 200 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.02 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.07 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ6/3 m (LC5206-K300,K500)<br>ϕ6/5 m (LC5206-T001,T002) |
| Material | Tool steel |
| Dustproof/waterproof | IP67 |
| Weight | 0.7 kg (LC5206-K300,K500)<br>1.7 kg (LC5206-T001,T002) |
| Options | Summing box (p.38) , Junction box (p.38) |

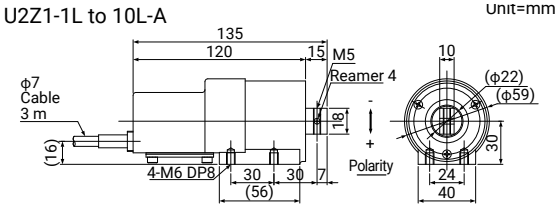
## Hermetically sealed beam-type load cells

# U2Z1-A Series

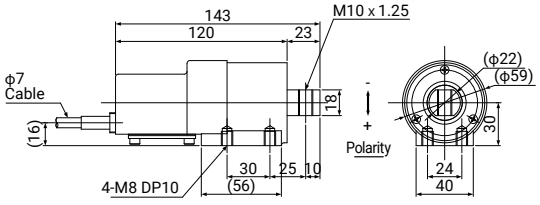
10 kN (1.020 kg) to 5 kN (509.9 kg)

Hermetically sealed for complete protection from moisture and water (IP67).
High resolution, compact size.
Easy-to-mount: platform scale, tank and hopper.

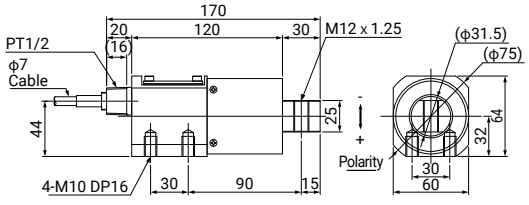
U2Z1-1L to 10L-A




U2Z1-20L to 100L-A




U2Z1-200L-A,500L-A




| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency | Weight |
|---|---|---|---|---|
| U2Z1-1L-A* | 10N (1.020 kg) | 0.45 mm | 135 Hz | 1.4 kg |
| U2Z1-2L-A* | 20N (2.039 kg) | 0.41 mm | 200 Hz | |
| U2Z1-5L-A* | 50N (5.099 kg) | 0.36 mm | 250 Hz | |
| U2Z1-10L-A* | 100N (10.20 kg) | 0.34 mm | 370 Hz | |
| U2Z1-20L-A* | 200N (20.39 kg) | 0.25 mm | 500 Hz | 1.7 kg |
| U2Z1-50L-A* | 500N (50.99 kg) | 0.23 mm | 820 Hz | |
| U2Z1-100L-A* | 1 kN (102.0 kg) | 0.21 mm | 1,210 Hz | |
| U2Z1-200L-A* | 2 kN (203.9 kg) | 0.20 mm | 1,400 Hz | 2.6 kg |
| U2Z1-500L-A* | 5 kN (509.9 kg) | 0.18 mm | 2,000 Hz | |

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.15 % |
| Safe overload | 500 % of R.C., 150 % of R.C. (-200L, -500L) |
| Ultimate overload | 500 % of R.C., 250 % of R.C. (-200L, -500L) |
| Combined error | 0.04 % of R.O., 0.07 % of R.O. (-1L to -10L) |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 20 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 350±3.5 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 2,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.05 % of R.O./10 °C |
| Temperature effect on span | 0.05 % of Load/10 °C |
| Cable thickness/length | ϕ7/3 m |
| Material | Tool steel /Aluminum |
| Dustproof/waterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) , Rod end bearing (p.45) |

CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

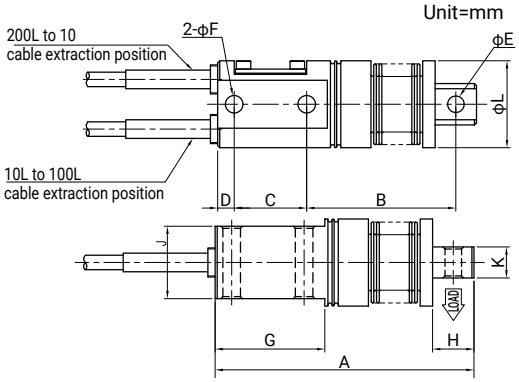
Hermetically sealed beam-type load cells

# LBP Series

100 N (10.20 kg) to 100 kN (10.20 t)

Makes fabrication of platforms like scales or hoppers easy. Exceptional environmental resistance with a sealed structure using phosphor bronze bellows. Suitable for both tension and compression applications.


Unit=mm




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Unit=mm

| Model | A | B | C | D | ϕE | ϕF | G | H | J | K | ϕL | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LBP-10L,20L,30L,50L,100L | 125 | 72 | 35 | 8 | 8 | 8.5 | 53 | 20 | 35 | 15 | 42 | 0.9 |
| LBP-200L,300L,500L | 200 | 120 | 45 | 15 | 12 | 14 | 80 | 40 | 40 | 25 | 52 | 2.0 |
| LBP-1 | 210 | 125 | 50 | 15 | 16 | 18 | 90 | 40 | 40 | 30 | 68 | 2.8 |
| LBP-2 | 215 | 125 | 50 | 20 | 20 CBOREΦ 26 DP3 | 22 | 95 | 40 | 50 | 34 | 68 | 4.0 |
| LBP-5 | 300 | 135 | 120 | 20 | 26 CBOREΦ 32 DP3 | 22 | 170 | 50 | 60 | 50 | 92 | 8.0 |
| LBP-10 | 300 | 118 | 135 | 22 | 20 CBOREΦ 38 DP10 | 32 | 187 | 52 | 70 | 56 | 108 | 12 |

Specifications (*: made-to-order item)

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency |
|---|---|---|---|
| LBP-10L* | 100 N (10.20 kg) | 0.26 mm | 620 Hz |
| LBP-20L | 200 N (20.39 kg) | 0.23 mm | 900 Hz |
| LBP-30L | 300 N (30.59 kg) | 0.22 mm | 1.15 kHz |
| LBP-50L | 500 N (50.99 kg) | 0.22 mm | 1.5 kHz |
| LBP-100L | 1 kN (102.0 kg) | 0.28 mm | 1.9 kHz |
| LBP-200L | 2 kN (203.9 kg) | 0.35 mm | 3.4 kHz |
| LBP-300L | 3 kN (305.9 kg) | 0.37 mm | 4.0 kHz |
| LBP-500L | 5 kN (509.9 kg) | 0.44 mm | 4.7 kHz |
| LBP-1 | 10 kN (1.020 t) | 0.54 mm | 5.5 kHz |
| LBP-2* | 20 kN (2.039 t) | - | - |
| LBP-5* | 50 kN (5.099 t) | - | - |
| LBP-10* | 100 kN (10.20 t) | - | - |

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V+0.2 %-0 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.04 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 20 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 420±40 Ω |
| Output terminal resistance | 347.5±3 Ω |
| Insulation resistance | Greater than 2,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 75 °C |
| Temperature effect on zero point | 0.02 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C |
| Cable thickness/length | ϕ7/3 m |
| Material | Tool steel |
| Dustproof/waterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) |

## Stainless steel beam-type load cell for tank and floor scale applications

# LCM13 Series

OIML 1 kN (102.0 kg) to 50 kN (5.099 t)

Ideal for constructing corrosion-resistant platforms and tank scales. Suitable for both tension and compression applications, with easy installation


Mounting kit with lift-off protection and horizontal stops
LCZAP-1413/
LCZAP-1414/
LCZAP-1415

Swivel foot
LCZAFT-01S

Rocker pin AXP-LCZARP


*See page 40 for more information.

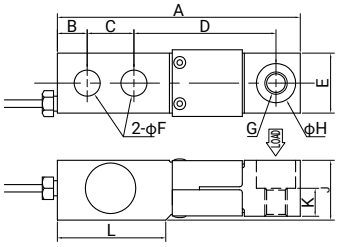
### Specifications

| Model | Rated capacity (R.C.) | OIML Class |
|---|---|---|
| LCM13-K100 | 1 kN (102.0 kg) | C3 |
| LCM13-K200 | 2 kN (203.9 kg) | |
| LCM13-K300 | 3 kN (305.9 kg) | |
| LCM13-K500 | 5 kN (509.9 kg) | |
| LCM13-T001 | 10 kN (1.020 t) | |
| LCM13-T1.5 | 15 kN (1.530 t) | |
| LCM13-T002 | 20 kN (2.039 t) | |
| LCM13-T003 | 30 kN (3.059 t) | |
| LCM13-T005 | 50 kN (5.099 t) | |

### LCM13 and LCM13-M series specifications

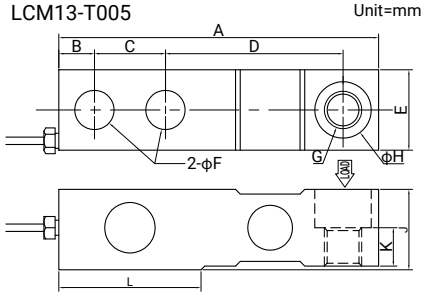
| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 380 Ω±20 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.016 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.013 % of Load/10 °C Typ. |
| Cable thickness/length | φ4/3 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) , Mounting kit with lift-off protection and horizontal stops (p.40) , Swivel foot (p.40) , Rocker pin (p.40) |

LCM13-K100, K200, K300

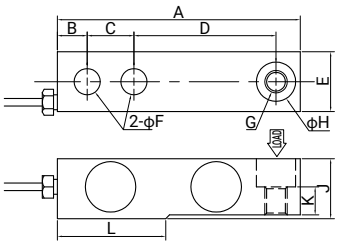



LCM13-T005

Unit=mm




LCM13-K500 , T001, T1.5, T002 , T003




CABLE COLOR CODE
RED: EXC+ WHITE: EXC- GREEN: SIG+
BLUE: SIG- YELLOW: SHIELD

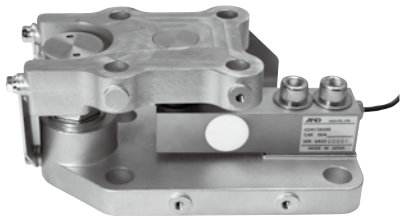
Unit=mm

| Model | A | B | C | D | E | φF | G | φH | J | K | L | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCM13-K100, K200, K300, K500, T001, T1.5 | 130 | 16 | 25 | 76 | 32 | 14 | M12 | 21 | 32 | 15 | 58 | 1.0 |
| LCM13-T002, T003 | 171 | 19 | 38 | 95 | 38 | 21 | M20 | 30.2 | 38 | 18 | 76 | 1.5 |
| LCM13-T005 | 171 | 19 | 38 | 95 | 43 | 21 | M20 | 30.2 | 43 | 20.5 | 76 | 2.0 |

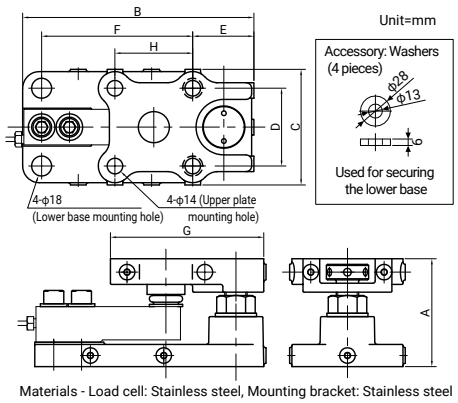
## Stainless steel beam-type load cell (with lift-off protection and horizontal stops)

# LCM13-M Series

1 kN (102.0 kg) to 30 kN (3.059 t)



Ideal for building corrosion-resistant tank and hopper scales. Compression type. Equipped with built-in stopper mechanism, with pre-adjusted stopper gaps for easy installation




Materials - Load cell: Stainless steel, Mounting bracket: Stainless steel

CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

### Rated capacity and specifications

(Refer to LCM13 Series specifications)
(*:Made-to-order item)

| Model | Rated capacity (R.C.) | OIML Class |
|---|---|---|
| LCM13-K100-M* | 1 kN (102.0 kg) | C3 |
| LCM13-K200-M* | 2 kN (203.9 kg) | |
| LCM13-K300-M* | 3 kN (305.9 kg) | |
| LCM13-K500-M* | 5 kN (509.9 kg) | |
| LCM13-T001-M* | 10 kN (1.020 t) | |
| LCM13-T1.5-M* | 15 kN (1.530 t) | |
| LCM13-T002-M* | 20 kN (2.039 t) | |
| LCM13-T003-M* | 30 kN (3.059 t) | |

Unit=mm

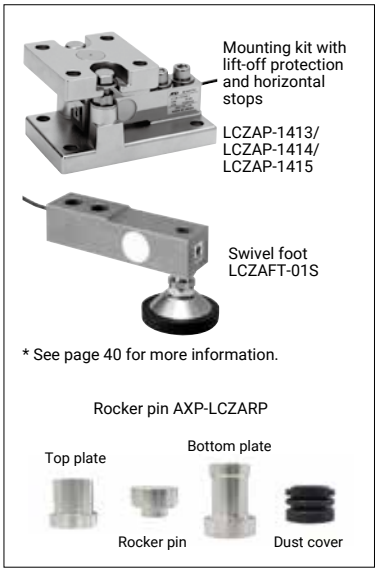
| Model | A | B | C | D | E | F | G | H | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|
| LCM13-K100-M, K200-M, K300-M, K500-M, T001-M, T1.5-M | 97 | 208 | 104 | 70 | 55 | 136 | 138 | 70 | 5.6 |
| LCM13-T002-M, T003-M | 116 | 242 | 118 | 84 | 48 | 175 | 145 | 84 | 8.6 |

## Beam-type load cell for tank and floor scale applications

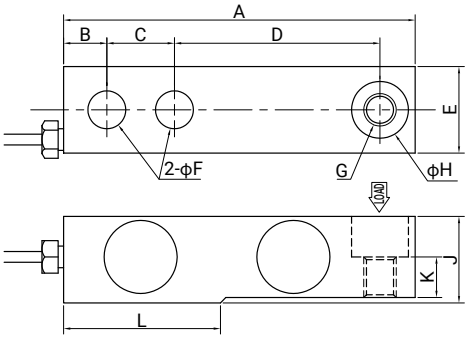
# LCM19 Series

5 kN (509.9 kg) to 20 kN (2.039 t)

Ideal for tank, hopper, and floor scale applications. Suitable for both tension and compression.




Unit=mm




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Unit=mm

| Model | A | B | C | D | E | φF | G | φH | J | K | L | Weight(kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCM19-K500, T001, T1.5 | 130 | 16 | 25 | 76 | 32 | 14 | M12 | 21 | 32 | 15 | 58 | 1.0 |
| LCM19-T002 | 171 | 19 | 38 | 95 | 38 | 21 | M20 | 30.2 | 38 | 18 | 76 | 1.5 |

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LCM19-K500 | 5 kN (509.9 kg) |
| LCM19-T001 | 10 kN (1.020 t) |
| LCM19-T1.5 | 15 kN (1.530 t) |
| LCM19-T002 | 20 kN (2.039 t) |

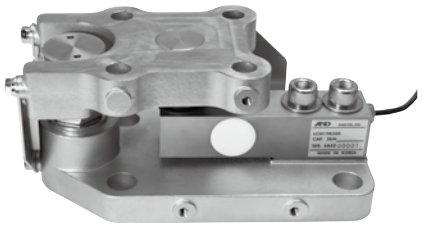
### LCM19 and LCM19-M series specifications

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 380±20 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.016 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.013 % of Load/10 °C Typ. |
| Cable thickness/length | φ4/3 m |
| Material | Tool steel |
| Dustproof/waterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) , Mounting kit with lift-off protection and horizontal stops (p.40) , Swivel foot (p.40) , Rocker pin (p.40) |

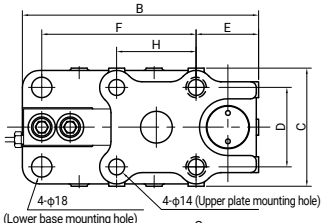
## Beam-type load cell (with lift-off protection and horizontal stops)

# LCM19-M Series

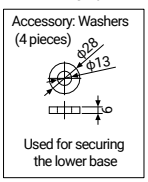
5 kN (509.9 kg) to 20 kN (2.039 t)

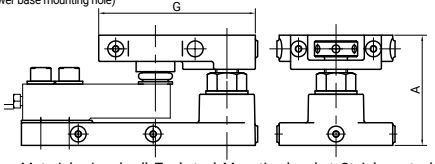


Ideal for tank, hopper, and floor scale applications. Compression type. Equipped with built-in stopper mechanism, with pre-adjusted stopper gaps for easy installation.




Unit=mm




Materials - Load cell: Tool steel, Mounting bracket: Stainless steel

CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

### Rated capacity and specifications (Refer to LCM19 Series specifications)

| Model | Rated capacity (R.C.) |
|---|---|
| LCM19-K500-M | 5 kN (509.9 kg) |
| LCM19-T001-M | 10 kN (1.020 t) |
| LCM19-T1.5-M | 15 kN (1.530 t) |
| LCM19-T002-M | 20 kN (2.039 t) |

Unit=mm

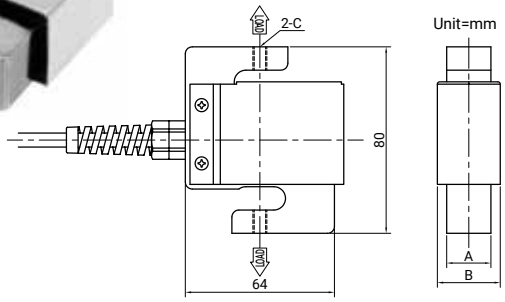
| Model | A | B | C | D | E | F | G | H | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|
| LCM19-K500-M, T001-M, T1.5-M | 97 | 208 | 104 | 70 | 55 | 136 | 138 | 70 | 5.6 |
| LCM19-T002-M | 116 | 242 | 118 | 84 | 48 | 175 | 145 | 84 | 8.6 |

## S-type universal compact load cell for tank and hopper applications

# LC1122 Series

500 N (50.99 kg) to 5 kN (509.9 kg)

Aluminum material with white anodized coating for enhanced corrosion resistance.
Features a structure less susceptible to eccentric loads, ideal for dynamic weighing.
Suitable for both tension and compression.




CABLE COLOR CODE (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD
(COMPRESSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG-+ YELLOW: SHIELD

Unit=mm

| Model | A | B | C | Weight (kg) |
|---|---|---|---|---|
| LC1122-K050, K100 | 19 | 27 | M6 X 1, DP 10 | 0.4 |
| LC1122-K250, K500 | 24 | 32 | M12 X 1.75, DP10 | 0.5 |

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LC1122-K050 | 500 N (50.99 kg) |
| LC1122-K100 | 1 kN (102.0 kg) |
| LC1122-K250 | 2.5 kN (254.9 kg) |
| LC1122-K500 | 5 kN (509.9 kg) |

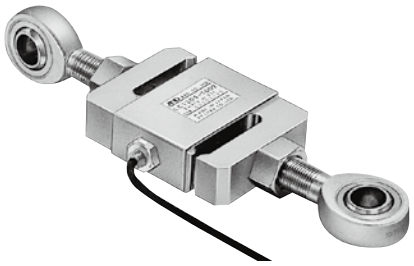
| | |
|---|---|
| Rated output (R.O.) | 1.0197 mV/V+20 %-0 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 400 % of R.C. |
| Combined error | 0.04 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±5 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 50 °C |
| Temperature effect on zero point | 0.1 % of R.O./10 °C |
| Temperature effect on span | 0.03 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ6/3 m |
| Material | Aluminum |
| Dustproof/waterproof | IP54 |
| Deflection amount | 0.13 mm |
| Options | Summing box (p.38) , Junction box (p.38) , Compression fittings (p.41) , Rod end bearings (p.44) |

## S-type universal compact load cell for tank and hopper applications

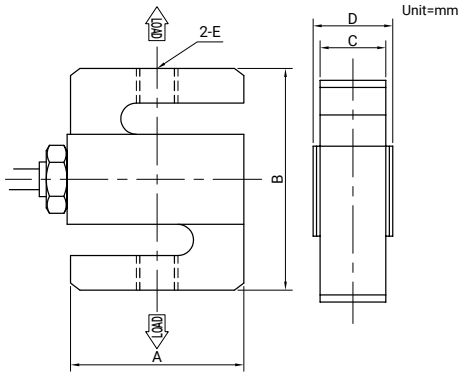
# LC1205 Series

200 N (20.39 kg) to 50 kN (5.099 t)

Offering a wide range from 20 kg to 5 t with high precision of 1/5,000.
Features a structure less susceptible to eccentric loads, ideal for dynamic weighing. Suitable for both tension and compression.



Note: The rod end bearing in the photo is optional




CABLE COLOR CODE (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD
(COMPRESSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG-+ YELLOW: SHIELD

Unit=mm

| Model | A | B | C | D | E | Weight (kg) | Material |
|---|---|---|---|---|---|---|---|
| LC1205-K020, K050 | 50 | 64 | 19 | 23 | M6 x 1, DP 11 | 0.3 | Aluminum |
| LC1205-K100 | 50 | 64 | 12 | 16 | M6 x 1, DP 10 | 0.4 | |
| LC1205-K200, K500 | 50 | 64 | 19 | 23 | M12 x 1.75, DP 10 | 0.5 | |
| LC1205-T001A | 75 | 100 | 24 | 28 | M18 x 1.5, DP 25 | 1.3 | Tool steel |
| LC1205-T002 | 75 | 100 | 24 | 28 | M18 x 1.5, DP 22.5 | 1.3 | |
| LC1205-T005 | 75 | 100 | 36 | 40 | M24 x 2, DP 21 | 1.9 | |

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LC1205-K020 | 200 N (20.39 kg) |
| LC1205-K050 | 500 N (50.99 kg) |
| LC1205-K100 | 1 kN (102.0 kg) |
| LC1205-K200 | 2 kN (203.9 kg) |
| LC1205-K500 | 5 kN (509.9 kg) |
| LC1205-T001A | 10 kN (1.020 t) |
| LC1205-T002 | 20 kN (2.039 t) |
| LC1205-T005 | 50 kN (5.099 t) |

| | |
|---|---|
| Rated output (R.O.) | 1.5296 mV/V±0.5 % (-K020, -K050) |
| | 2.0394 mV/V±0.5 % |
| Safe overload | 200 % of R.C. |
| Ultimate overload | 250 % of R.C. (-K020, -K050) |
| | 200 % of R.C. |
| Combined error | 0.02 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±2 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.07 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ6/3 m |
| | ϕ6/5 m (-T001A, -T002, -T005) |
| Material | Tool steel and Aluminum |
| Dustproof/waterproof | IP54 |
| Deflection amount | 0.12 mm(-K020, -K050, -K100, -K200) |
| Options | Summing box (p.38) , Junction box (p.38) , Compression fittings (p.41) , Rod end bearings (p.44) |

S-type universal compact load cell with USB Output

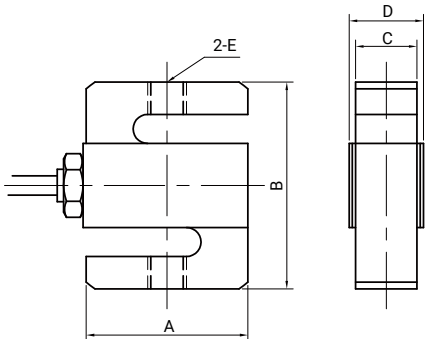
# LC1205-USB Series NEW

200 N (20.39 kg) to 50 kN (5.099 t)

Compression/Tension-type digital load cell for force measurement. Pre-calibrated, eliminating the need for an indicator - connects directly to a computer. Measurement data can be viewed/imported using the 'WinCT-DLC' measurement software.

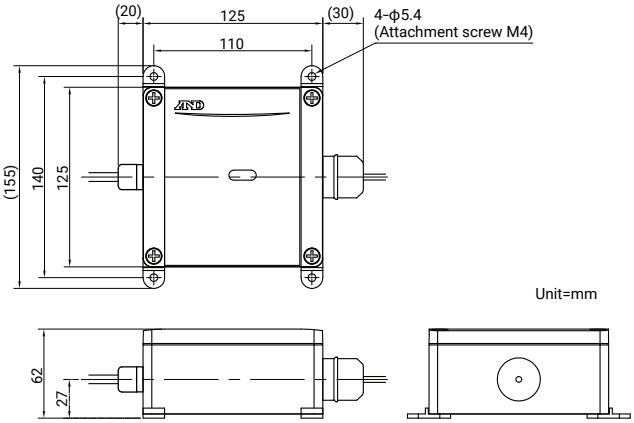


| | |
|---|---|
| Output polarity | +: Tension, -: Compression |
| Combined error | 0.02 % of R.O. |
| Power supply voltage | 5 VDC (USB bus power) |
| Average current consumption | 60 mA or less |
| Zero balance | ±2 % of R.O. |
| Temp. effect on zero | 0.08 % of R.O./10 °C |
| Temp. effect on span | 0.05 % of Load/10°C |
| Temp. compensation range | -10 °C to 60 °C |
| USB cable | Φ4 mm / 1.2 m / Type-A |
| Conversion box material | Polycarbonate |
| Dustproof/waterproof | Load Cell: IP54 / Conversion Box: IP65 |
| A/D conversion rate | 100 times/s |
| Digital filter | Select from None, 0.7, 1.0, 1.4, 2.0, 2.8, 4.0, 5.6, 8.0, 11.0 Hz (Initial value 1.0 Hz) |
| Communications standard | Conformed to USB Ver.2.0 Full Speed |
| Baud rate | 38400 bps |
| Character bit length | 8 bits |
| Parity | Even |
| Stop bit length | 1 bit |
| Terminator | CR LF |
| Code | ASCII |




Unit = mm

| Model | A | B | C | D | E |
|---|---|---|---|---|---|
| LC1205-K020-USB | 50 | 64 | 19 | 23 | M6 x 1, DP 11 |
| LC1205-K050-USB | 50 | 64 | 19 | 23 | M6 x 1, DP 11 |
| LC1205-K100-USB | 50 | 64 | 12 | 16 | M6 x 1, DP 10 |
| LC1205-K200-USB | 50 | 64 | 19 | 23 | M12 x 1.75, DP 10 |
| LC1205-K500-USB | 50 | 64 | 19 | 23 | M12 x 1.75, DP 10 |
| LC1205-T001A-USB | 75 | 100 | 24 | 28 | M18 x 1.5, DP 25 |
| LC1205-T002-USB | 75 | 100 | 24 | 28 | M18 x 1.5, DP 22.5 |
| LC1205-T005-USB | 75 | 100 | 36 | 40 | M24 x 2, DP 21 |




Unit=mm

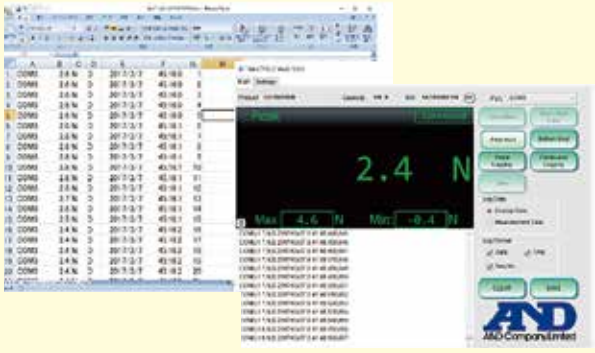
## Specifications

| Model | LC1205-K020-USB | LC1205-K050-USB | LC1205-K100-USB | LC1205-K200-USB | LC1205-K500-USB | LC1205-T001A-USB | LC1205-T002-USB | LC1205-T005-USB |
|---|---|---|---|---|---|---|---|---|
| Rated capacity | 200 N (20.39 kg) | 500 N (50.99 kg) | 1 kN (102.0 kg) | 2 kN (203.9 kg) | 5 kN (509.9 kg) | 10 kN (1.020 t) | 20 kN (2.039 t) | 50 kN (5.099 t) |
| Rated output | 200.000 ± 1.000[N] | 500.000 ± 2.500[N] | 1000.00 ± 5.00[N] | 2000.00 ± 10.00[N] | 5000.00 ± 25.00[N] | 10000.0 ± 50.0[N] | 20000.0 ± 100.0[N] | 50.0000±0.250[0 kN] |
| Safe load limit | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. |
| Ultimate safe overload | 250 % of R.C. | 250 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. | 200 % of R.C. |
| Load cell cable | Φ 6 mm / 3 m | Φ 6 mm / 3 m | Φ 6 mm / 3 m | Φ 6 mm / 3 m | Φ 6 mm / 3 m | Φ 6 mm / 5 m | Φ 6 mm / 5 m | Φ 6 mm / 5 m |
| Load cell material | Aluminum | Aluminum | Steel | Steel | Steel | Steel | Steel | Steel |
| Weight | 0.7 kg | 0.7 kg | 0.8 kg | 0.9 kg | 0.9 kg | 1.7 kg | 1.7 kg | 2.4 kg |
| Deflection amount | 0.12 mm | 0.12 mm | 0.12 mm | 0.12 mm | - | - | - | - |

## WinCT-DLC Windows Data Acquisition Software

WinCT-DLC is "Windows data communication software" designed to transfer measurement data from USB output load cells to a computer. The measurement results can be saved as CSV or Excel spreadsheet format.

DOWNLOAD WINCT-DLC




NOTE: This software is for acquiring measurement dataand does not have control functions like an indicator.

## Hermetically sealed load cell for tank and hopper applications

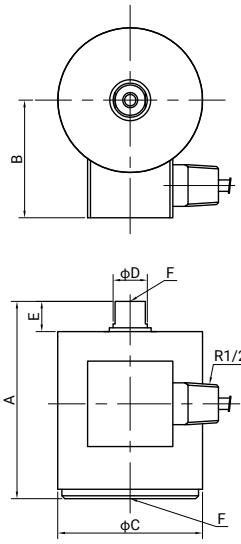
# LC1216 Series

1 kN (102.0 kg) to 50 kN (5.099 t)

Perfectly sealed type suitable for harsh conditions. Features a structure less susceptible to eccentric loads, ideal for dynamic weighing. Suitable for both tension and compression.

Note: The rod end bearing in the photo is optional

Unit=mm




CABLE COLOR CODE (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD
(COMPRESSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG-+ YELLOW: SHIELD

Unit=mm

| Model | A | B | ϕC | ϕD | E | F | Weight (kg) |
|---|---|---|---|---|---|---|---|
| LC1216-K100 | 104 | 62 | 77 | 19 | 16 | M6 x 1, DP9 | 1.7 |
| LC1216-K200, K500 | 104 | 62 | 77 | 19 | 16 | M12 X 1.75, DP10 | 1.8 |
| LC1216-T001A | 150 | 80 | 102 | 31 | 20 | M18 X 1.5, DP 13 | 4.0 |
| LC1216-T002A, T005 | 180 | 80 | 102 | 41 | 34 | M24 X 2, DP 15 | 5.6 |

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LC1216-K100 | 1 kN (102.0 kg) |
| LC1216-K200 | 2 kN (203.9 kg) |
| LC1216-K500 | 5 kN (509.9 kg) |
| LC1216-T001A | 10 kN (1.020 t) |
| LC1216-T002A | 20 kN (2.039 t) |
| LC1216-T005 | 50 kN (5.099 t) |

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.5 % |
| Safe overload | 200 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.05 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±2 % of R.O. |
| Input terminal resistance | Approx. 400 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.07 % of R.O./10 °C |
| Temperature effect on span | 0.02 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ6/3 m, ϕ6/5 m (-T001A, -T002A, -T005) |
| Material | Tool steel |
| Dustproof/waterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) , Compression fittings (p.41) , Rod end bearings (p.44) |

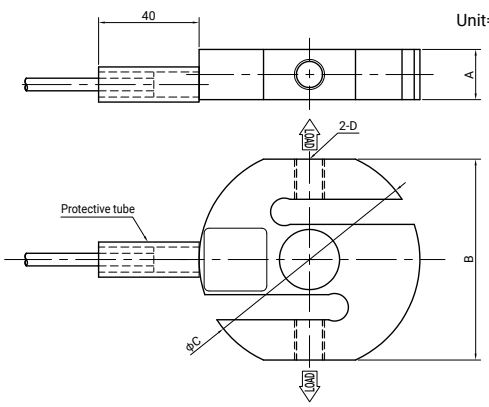
## Stainless steel S-type load cell for tank and hopper applications

# LCS15 Series

5 kN (509.9 kg) to 20 kN (2.039 t)

Ideal for specifications requiring corrosion resistance due to stainless steel construction. Features a structure less susceptible to eccentric loads. Designed for tension.

Unit=mm




CABLE COLOR CODE (TENSION)
RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LCS15-K500 | 5 kN (509.9 kg) |
| LCS15-T001 | 10 kN (1.020 t) |
| LCS15-T002 | 20 kN (2.039 t) |

Note: When using stainless steel rod end bearings, please ensure that the applied load is less than half of the rated capacity.

| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 380±20 Ω |
| Output terminal resistance | 350±3.5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.016 % of R.O./10 °C |
| Temperature effect on span | 0.013 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ5/4.5 m |
| Material | Stainless steel |
| Dustproofwaterproof | IP67 |
| Options | Summing box (p.38) , Junction box (p.38) , Rod end bearings (p.44) |

Unit=mm

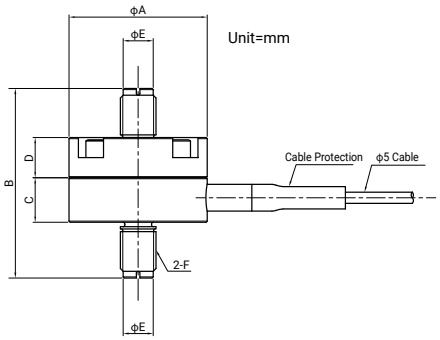
| Model | A | B | ϕC | D | Weight (kg) |
|---|---|---|---|---|---|
| LCS15-K500 | 20 | 80 | 88 | M12 X 1.75, DP 16 | 0.8 |
| LCS15-T001 | 25 | 80 | 88 | M18 X 1.5, DP 15 | 1.0 |
| LCS15-T002 | 35 | 100 | 108 | M24 X 2, DP 24 | 2.0 |

## Hermetically sealed compact load cell, multipurpose type

# TM/UM Series

500 N (50.99 kg) to 20 kN (2.039 t)

Small and lightweight for easy handling; ideal for dynamic weighing. Hermetically sealed structure with inert gas sealed in. TM type is for tension; UM type is for both tension and compression.




CABLE COLOR CODE

TM Series (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG+ YELLOW: SHIELD
UM Series (COMPRESSION) RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG-- YELLOW: SHIELD
UM Series (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG+ YELLOW: SHIELD

Unit=mm

| Model | A | B | C | D | E | F | Weight (kg) |
|---|---|---|---|---|---|---|---|
| TM (UM) -50L-A, 100L-A | 50 | 70 | 23 | 10 | 10 | M12 x 1.75 | 0.3 |
| TM (UM) -200L | 50 | 70 | 20 | 13 | 10 | M12 x 1.75 | 0.5 |
| TM (UM) -500L, 1, 2 | 62 | 85 | 20 | 18 | 13.5 | M16 x 2 | 0.9 |

### Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| TM (UM) -50L-A | 500 N (50.99 kg) |
| TM (UM) -100L-A | 1 kN (102.0 kg) |
| TM (UM) -200L | 2 kN (203.9 kg) |
| TM (UM) -500L | 5 kN (509.9 kg) |
| TM (UM) -1 | 10 kN (1.020 t) |
| TM (UM) -2 | 20 kN (2.039 t) |

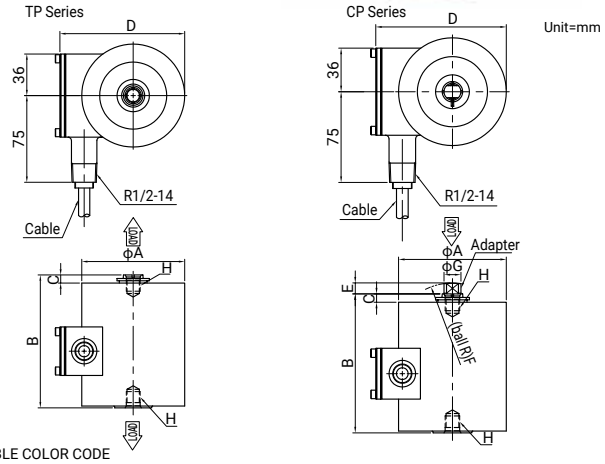
| Model | TM | UM |
|---|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.5 % | 2.0394 mV/V ±1 % (tension)<br>2.0394 mV/V ±3 % (compression) |
| Safe overload | 150 % of R.C. | |
| Ultimate overload | 200 % of R.C. | |
| Combined error | 0.2 % of R.O. | 0.3 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC | |
| Maximum excitation voltage | 18 VDC | |
| Zero balance | ±10 % of R.O. | |
| Input terminal resistance | 425±50 Ω | |
| Output terminal resistance | 350±5 Ω | |
| Insulation resistance | Greater than 1,000 MΩ at 50 VDC | |
| Temperature compensation range | -10 °C to 60 °C | |
| Temperature effect on zero point | 0.1 % of R.O./10 °C | |
| Temperature effect on span | 0.1 % of Load/10 °C | |
| Cable thickness/length | ϕ5/3 m | |
| Material | Tool steel | |
| Dustproof/waterproof | IP67 | |
| Options | Summing box (p.38) , Junction box (p.38) , Rod end bearings (p.45) | |

## Sealed structure load cell for tank and hopper applications

# TP (for tension)/CP Series (for compression)

200 N (20.39 kg) to 1 MN (102.0 t)

Sealed structure designed to withstand harsh environments. Large electrical output of 3 mV/V, with minimal long-term drift for stable performance over time.




CABLE COLOR CODE

TP Series (TENSION) RED: EXC+ WHITE: EXC- GREEN: SIG- BLUE: SIG+ YELLOW: SHIELD
CP Series (COMPRESSION) RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG-- YELLOW: SHIELD

Unit=mm

| Model | ϕA | B | C | D | E | F | ϕG | H | Weight(kg) |
|---|---|---|---|---|---|---|---|---|---|
| TP (CP) -20L,50L,100L | 89 | 115 | 6 | 108 | 7 | 50 | 12 | M10 X 1.25, DP 14 | 3.1 |
| TP (CP) -200L,300L,500L,1 | 89 | 115 | 7 | 108 | 9 | 50 | 14 | M12 X 1.25, DP 14 | 3.2 |
| TP (CP) -2,3,5 | 89 | 150 | 10 | 108 | 17 | 100 | 26 | M24 X 2, DP 30 | 4.8 |
| TP (CP) -10 | 125 | 215 | 12 | 150 | 28 | 200 | 42 | M39 X 2, DP 50 | 10.2 |
| TP (CP) -20 | 165 | 290 | 15 | 194 | 28 | 200 | 58 | M50 X 2, DP 65 | 27.0 |
| TP (CP) -30 | 203 | 360 | 23 | 233 | 40 | 300 | 70 | M64 X 3, DP 90 | 50.0 |
| TP (CP) -50 | 232 | 452 | 30 | 263 | 48 | 300 | 82 | M76 X 3, DP 115 | 88.0 |
| TP (CP) -100 | 310 | 610 | 30 | 343 | 70 | 300 | 108 | M100 X 3, DP 150 | 200.0 |

### Specifications (*: made-to-order item)

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency |
|---|---|---|---|
| TP (CP) -20L* | 200 N (20.39 kg) | 0.33 mm | 230 Hz |
| TP (CP) -50L* | 500 N (50.99 kg) | 0.28 mm | 360 Hz |
| TP (CP) -100L* | 1 kN (102.0 kg) | 0.23 mm | 580 Hz |
| TP (CP) -200L* | 2 kN (203.9 kg) | 0.18 mm | 1.2 kHz |
| TP (CP) -300L* | 3 kN (305.9 kg) | 0.18 mm | 1.2 kHz |
| TP (CP) -500L* | 5 kN (509.9 kg) | 0.15 mm | 6.9 kHz |
| TP (CP) -1* | 10 kN (1.020 t) | 0.13 mm | 2.8 kHz |
| TP (CP) -2* | 20 kN (2.039 t) | 0.17 mm | 2.1 kHz |
| TP (CP) -3* | 30 kN (3.059 t) | 0.13 mm | 2.4 kHz |
| TP (CP) -5* | 50 kN (5.099 t) | 0.13 mm | 3.5 kHz |
| TP (CP) -10* | 100 kN (10.20 t) | 0.18 mm | 2.5 kHz |
| TP (CP) -20* | 200 kN (20.39 t) | 0.24 mm | 1.8 kHz |
| TP (CP) -30* | 300 kN (30.59 t) | 0.27 mm | 1.6 kHz |
| TP (CP) -50* | 500 kN (50.99 t) | 0.32 mm | 1.4 kHz |
| TP (CP) -100* | 1 MN (102.0 t) | 0.40 mm | 1.1 kHz |

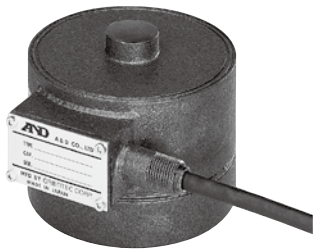
| | |
|---|---|
| Rated output (R.O.) | 3.0592 mV/V±0.1 % |
| Safe overload | 150 % of R.C., 500 % of R.C. (-20L to -100L) |
| Ultimate overload | 300 % of R.C., 500 % of R.C. (-20L to -100L) |
| Combined error | 0.05 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 20 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 350±3.5 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 75 °C |
| Temperature effect on zero point | 0.03 % of R.O./10 °C |
| Temperature effect on span | 0.03 % of Load/10 °C |
| Cable thickness/length | ϕ9.7/3 m |
| Material | Tool steel |
| Dustproof/ waterproof | IP67 |
| Options | Summing bo (p.38) , Junction box (p.38) , Mounting kit with integrated horizontal stops for CP (p.40) , Compression Fittings for CP (p.43) , Rod end bearings for TP (p.45) |

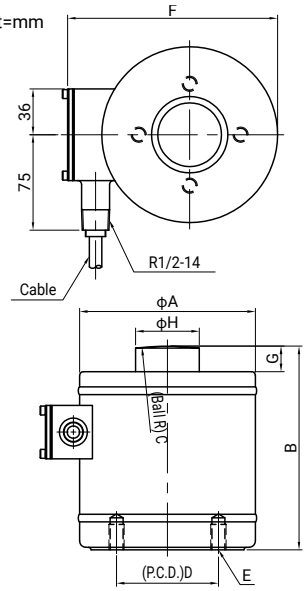
## Hermetically sealed load cell for tank and hopper applications

# C2Z1/C2X1 Series

C2Z1 : 5 kN (509.9 kg) to 200 kN (20.39 t)
C2X1 : 300 kN (30.59 t) to 5 MN (509.9 t)

Hermetically sealed compression type available in various capacities.






CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG-- YELLOW: SHIELD

Unit=mm

| Model | ϕA | B | C | D | E | F | G | ϕH | Weight(kg) |
|---|---|---|---|---|---|---|---|---|---|
| C2Z1-500L,1,2 | 113 | 85 | 50 | 50 | 4-M6, DP 10 | 138 | 10 | M16 x 1.5 | 4 |
| C2Z1-5,10 | 138 | 110 | 100 | 60 | 4-M8, DP 15 | 165 | 15 | 35 | 8 |
| C2Z1-20 | 164 | 145 | 200 | 80 | 4-M12, DP 20 | 193 | 20 | 45 | 14 |
| C2X1-30,50 | 138 | 160 | 200 | 80 | 4-M12, DP 20 | 165 | 20 | 50 | 10 |
| C2X1-100 | 164 | 190 | 200 | 100 | 4-M16, DP 20 | 193 | 30 | 70 | 18 |
| C2X1-200 | 214 | 230 | 300 | 130 | 4-M16, DP 20 | 245 | 30 | 95 | 34 |
| C2X1-300 | 214 | 320 | 600 | 130 | 4-M24, DP 35 | 245 | 30 | 120 | 50 |
| C2X1-500 | 316 | 400 | 800 | 200 | 4-M30, DP 50 | 349 | 30 | 170 | 140 |

Specifications (*1: Custom-made item *2: Made-to-order item)

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency |
|---|---|---|---|
| C2Z1-500L | 5 kN (509.9 kg) | 0.04 mm | 4.0 kHz |
| C2Z1-1 | 10 kN (1.020 t) | 0.05 mm | 4.6 kHz |
| C2Z1-2 | 20 kN (2.039 t) | 0.10 mm | 4.7 kHz |
| C2Z1-5 | 50 kN (5.099 t) | 0.09 mm | 3.5 kHz |
| C2Z1-10 | 100 kN (10.20 t) | 0.14 mm | 4.0 kHz |
| C2Z1-20 | 200 kN (20.39 t) | 0.17 mm | 3.5 kHz |
| C2X1-30*2 | 300 kN (30.59 t) | 0.13 mm | 4.2 kHz |
| C2X1-50*2 | 500 kN (50.99 t) | 0.16 mm | 7.0 kHz |
| C2X1-100*2 | 1 MN (102.0 t) | 0.11 mm | 8.0 kHz |
| C2X1-200*2 | 2 MN (203.9 t) | 0.16 mm | 6.4 kHz |
| C2X1-300*2 | 3 MN (305.9 t) | 0.23 mm | 5.4 kHz |
| C2X1-500*1 | 5 MN (509.9 t) | 0.28 mm | 4.0 kHz |

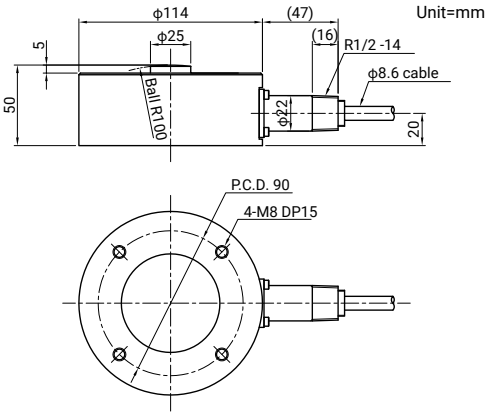
| Model | C2Z1 | C2X1 |
|---|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.4 % | 2.0394 mV/V±1 % |
| Safe overload | 500 % of R.C. | 150 % of R.C. |
| Ultimate overload | 1,000 % of R.C. | 250 % of R.C. |
| Combined error | 0.2 % of R.O. | 0.4 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC | |
| Maximum excitation voltage | 20 VDC | |
| Zero balance | ±1 % of R.O. | |
| Input terminal resistance | 350±3.5 Ω | |
| Output terminal resistance | 350±5 Ω | |
| Insulation resistance | Greater than 1,000 MΩ at 50 VDC | |
| Temperature compensation range | -10 °C to 75 °C | |
| Temperature effect on zero point | 0.05 % of R.O./10 °C | |
| Temperature effect on span | 0.1 % of Load/10 °C | |
| Cable thickness/length | ϕ9.7/3 m | |
| Material | Tool steel | |
| Dustproof/waterproof | IP67 | |
| Options | Summing box (p.38) , Junction box (p.38) , Compression Fittings (p.43) | |

## Hermetically sealed load cell for tank and hopper applications

# CM Series

50 kN (5.099 t) to 200 kN (20.39 t)

Hermetically sealed construction with inert gas sealed in. Compression type.
Easy to install and maintain due to its compact and slim design.


CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG-- YELLOW: SHIELD

Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency |
|---|---|---|---|
| CM-5 | 50 kN (5.099 t) | 0.06 mm | 14 kHz |
| CM-10 | 100 kN (10.20 t) | 0.04 mm | 24 kHz |
| CM-20 | 200 kN (20.39 t) | 0.03 mm | 30 kHz |

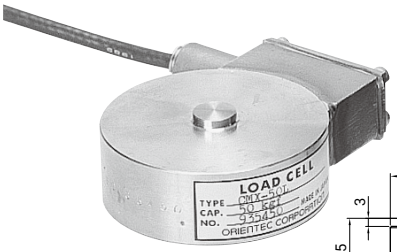
| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.5 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.25 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 18 VDC |
| Zero balance | ±2 % of R.O. |
| Input terminal resistance | 425±50 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 1,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.1 % of R.O./10 °C |
| Temperature effect on span | 0.1 % of Load/10 °C |
| Cable thickness/length | ϕ8.6/3 m |
| Material | Tool steel |
| Dustproof/waterproof | IP67 |
| Weight | 3.3 kg |
| Options | Summing box (p.38) , Junction box (p.38) , Compression Fittings (p.43) |

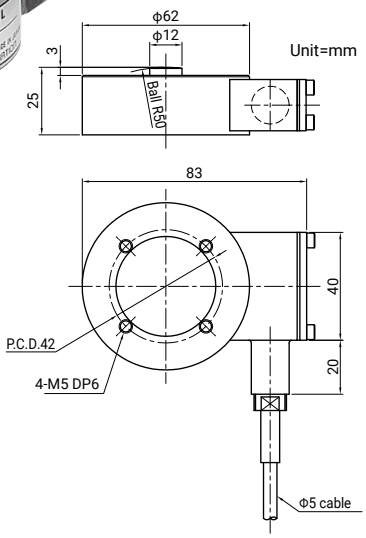
## Hermetically sealed compact load cell for tank and hopper applications

# CMX Series

500 N (50.99 kg) to 20 kN (2.039 t)

Inert gas-filled, sealed structure with all stainless steel construction. Compact and slim design for easy installation and maintenance. Compression type.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG– YELLOW: SHIELD

Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency |
|---|---|---|---|
| CMX-50L | 500 N (50.99 kg) | 0.06 mm | 5.5 kHz |
| CMX-100L | 1 kN (102.0 kg) | 0.03 mm | 8.1 kHz |
| CMX-200L | 2 kN (203.9 kg) | 0.03 mm | 11.5 kHz |
| CMX-500L | 5 kN (509.9 kg) | 0.03 mm | 18.5 kHz |
| CMX-1 | 10 kN (1.020 t) | 0.04 mm | 22.5 kHz |
| CMX-2 | 20 kN (2.039 t) | 0.03 mm | 20.0 kHz |

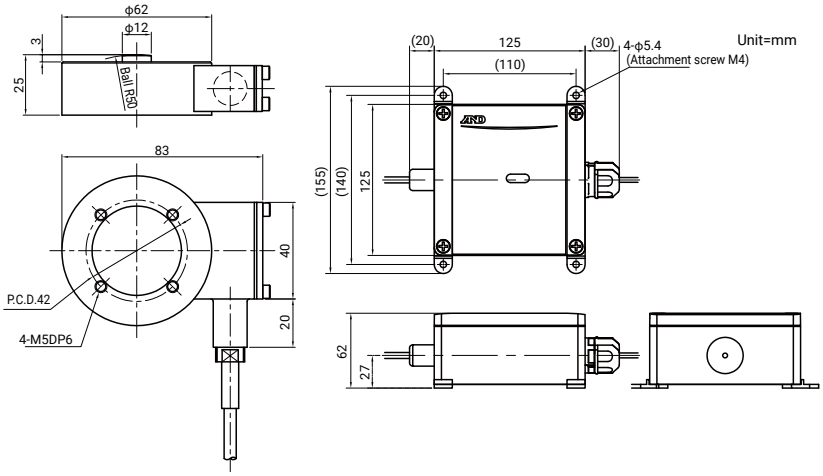
| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.5 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.2 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±2 % of R.O. |
| Input terminal resistance | 425±50 Ω |
| Output terminal resistance | 350±5 Ω |
| Insulation resistance | Greater than 1,000 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 60 °C |
| Temperature effect on zero point | 0.1 % of R.O./10 °C |
| Temperature effect on span | 0.1 % of Load/10 °C |
| Cable thickness/length | ϕ5/3 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP67 |
| Weight | 0.6 kg |
| Options | Summing box (p.38), Junction box (p.38), Compression Fittings (p.43) |

## Hermetically sealed compact load cell with USB output

# CMX-USB Series NEW

500 N (50.99 kg) to 20 kN (2.039 t)

Compression-type digital load cell for force measurement. Pre-calibrated, eliminating the need for an indicator - connects directly to a computer. Measurement data can be viewed/ imported using the 'WinCT-DLC' measurement software (see page 36)




Specifications

| Model | Rated capacity (R.C.) | Deflection amount | Natural frequency*1 |
|---|---|---|---|
| CMX-50L-USB | 500 N (50.99 kg) | 0.06 mm | 5.5 kHz |
| CMX-100L-USB | 1 kN (102.0 kg) | 0.03 mm | 8.1 kHz |
| CMX-200L-USB | 2 kN (203.9 kg) | 0.03 mm | 11.5 kHz |
| CMX-500L-USB | 5 kN (509.9 kg) | 0.03 mm | 18.5 kHz |
| CMX-1-USB | 10 kN (1.020 t) | 0.04 mm | 22.5 kHz |
| CMX-2-USB | 20 kN (2.039 t) | 0.03 mm | 20.0 kHz |

*1 Load cell only

| | |
|---|---|
| Combined error | 0.2 % of R.O. |
| Power supply voltage | 5 VDC (USB bus power) |
| Average current consumption*2 | 60 mA or less |
| Zero balance | ±2 % of R.O. |
| Temperature effect on zero point | 0.2% of R.O./10 °C |
| Temperature effect on span | 0.2 % of Load/10 °C |
| Temperature compensation range | -10 °C to 60 °C |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Cable | Load cell cable: ϕ5 mm / 3 m<br>USB cable: ϕ4 mm / 1.2 m / Type-A |
| Material | Load Cell: Stainless steel<br>Conversion Box: Polycarbonate |
| Dustproof/ waterproof | Load Cell: IP67, Conversion Box: IP65 |
| Weight | 1 kg |
| A/D conversion rate | 100 times/s |
| Digital filter | Select from None, 0.7, 1.0, 1.4,2.0, 2.8, 4.0, 5.6, 8.0, 11.0 Hz (Initial value 1.0 Hz) |
| Communications standard | USB Ver.2.0 Full Speed |
| Communication Settings | Baud rate 38400 bps<br>Character bit length 8 bit<br>Parity Even<br>Stop bit length 1 bit<br>Terminator CR LF<br>Code ASCII |

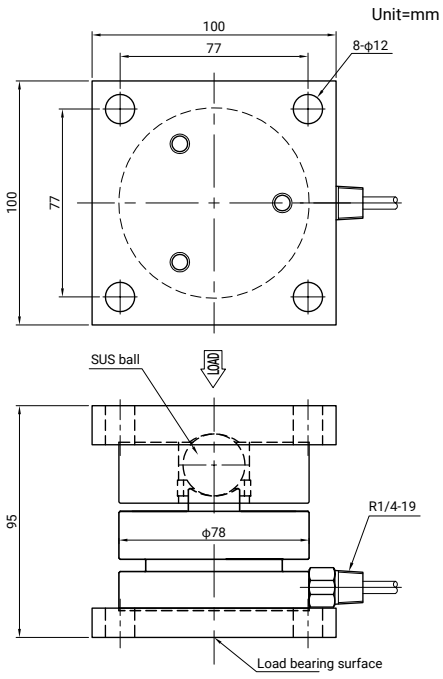
*2: Reference value

## Hermetically sealed stainless steel load cell for tank and hopper application

# LCC07 Series

5 kN (509.9 kg) to 50 kN (5.099 t)

Hermetically sealed stainless steel welded construction with transverse load stopper*. Ideal for hopper and tank scales in the food and pharmaceutical markets. Designed for compression applications. * This mechanism provides restorative force when subjected to lateral loads, using a ball bearing mechanism.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LCC07-K500 | 5 kN (509.9 kg) |
| LCC07-T001 | 10 kN (1.020 t) |
| LCC07-T002 | 20 kN (2.039 t) |
| LCC07-T003 | 30 kN (3.059 t) |
| LCC07-T005 | 50 kN (5.099 t) |

| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 780+20 Ω |
| Output terminal resistance | 700±10 Ω |
| Insulation resistance | Greater than 500 MΩ at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.04 % of R.O./10 °C |
| Temperature effect on span | 0.014 % of Load/10 °C Typ. |
| Cable thickness/ length | φ5.6/5 m |
| Material | Stainless steel |
| Dustproof/ waterproof | IP67 |
| Weight | 4 kg |
| Options | Summing box (p.38) , Junction box (p.38) |

## Hermetically sealed stainless steel load cell for tank and hopper application

# LCC12 Series

100 kN (10.20 t) to 300 kN (30.59 t)

Hermetically sealed stainless steel welded construction enables use outdoors and in harsh environments. Easy installation with built-in transverse movement control and lift-off prevention mechanisms. High accuracy with a total error of 0.03 % R.O. Designed for compression.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Specifications

| Model | Rated capacity (R.C.) |
|---|---|
| LCC12-T010 | 100 kN (10.20 t) |
| LCC12-T020 | 200 kN (20.39 t) |
| LCC12-T030 | 300 kN (30.59 t) |

| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Ultimate overload | 200 % of R.C. |
| Combined error | 0.03 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 800 Ω±80 Ω |
| Output terminal resistance | 2,200 Ω±10 Ω |
| Insulation resistance | Greater than 5,000 MΩ at 50 VDC |
| Temperature compensation range | -20 °C to 60 °C |
| Temperature effect on zero point | 0.019 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.010 % of Load/10 °C Typ. |
| Cable thickness/length | φ8/12 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP68 (Water depth 1.5 m / 100 hours) |
| Weight | 22 kg |
| Mounting bracket | Allowable horizontal force 75 kN<br>Allowable buoyant force 80 kN |
| Options | Summing box (p.38) , Junction box (p.38) |

## Stainless steel column-type load cell for truck scale applications

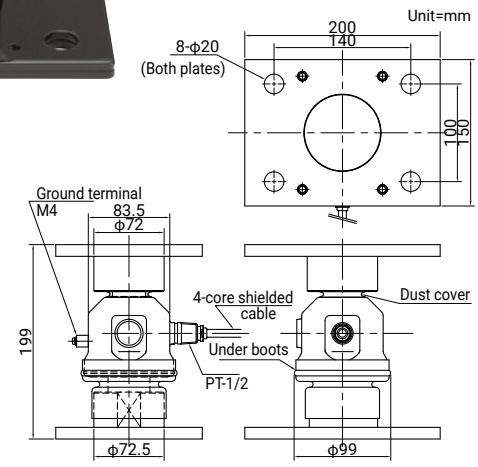
# LCC11 Series

OIML 100 kN (10.20 t) to 300 kN (30.59 t)

The sealed stainless steel construction ensures excellent corrosion resistance and environmental durability. Ideal for large-capacity applications such as hopper scales and truck scales. Designed for compression.

### Specifications

| Model | Rated capacity (R.C.) | Mounting kit? (Y/N) |
|---|---|---|
| LCC11-T010-K | 100 kN (10.20 t) | Yes |
| LCC11-T020-K | 200 kN (20.39 t) | |
| LCC11-T030-K | 300 kN (30.59 t) | |
| LCC11-T010N-K | 100 kN (10.20 t) | No |
| LCC11-T020N-K | 200 kN (20.39 t) | |
| LCC11-T030N-K | 300 kN (30.59 t) | |




| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1% |
| Safe overload | 200 % of R.C. |
| Ultimate overload | 300 % of R.C. |
| Combined error | 0.016 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 800±80 Ω |
| Output terminal resistance | 2,200±10 Ω |
| Insulation resistance | 5,000 MΩ or more at 50 VDC |
| Temperature compensation range | -20 °C to 60 °C |
| Temperature effect on zero point | 0.019 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.010 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ8/12 m |
| Material | Load cell:Stainless steel<br>Mounting kit:Tool steel |
| Dustproof/waterproof | IP68 (Water depth 1.5 m/100 hours) |
| Weight | 7.5 kg |
| Options | Summing box (p.38) , Junction box (p.38) |

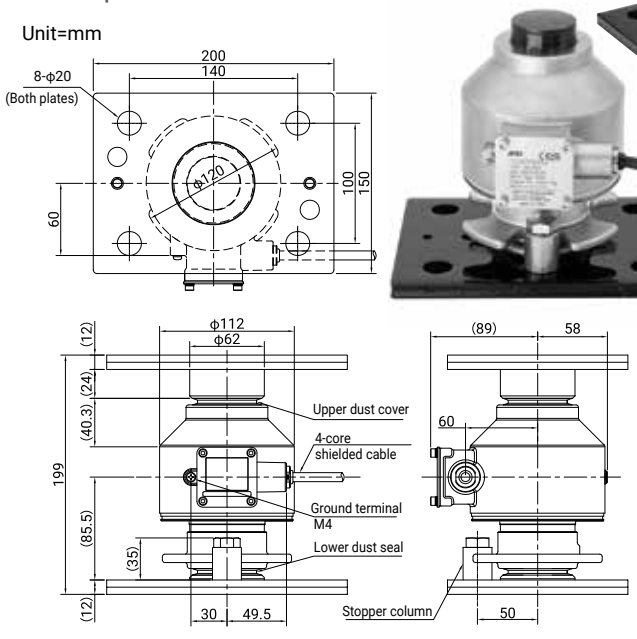
CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

## Stainless steel column-type load cell for truck scale applications

# LCC20 Series NEW

OIML CE 98.07 kN (10 t) to 294.2 kN (30 t)

Featuring a sealed structure with an IP68 protection rating (submersible to 1.5 m depth for 100 hours), this high-performance compression double convex type load cell is ideal for large hopper and truck scales. Mounting bracket option with anti-rotation function available.




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG-
ORANGE: SENSING+ BLACK: SENSING- YELLOW: SHIELD

### Specifications

| Model | Rated capacity(R.C.) | Mounting kit? (Y/N) |
|---|---|---|
| LCC20-T030-K | 294.2 kN (30 t) | Yes |
| LCC20-T030N-K | 294.2 kN (30 t) | No |

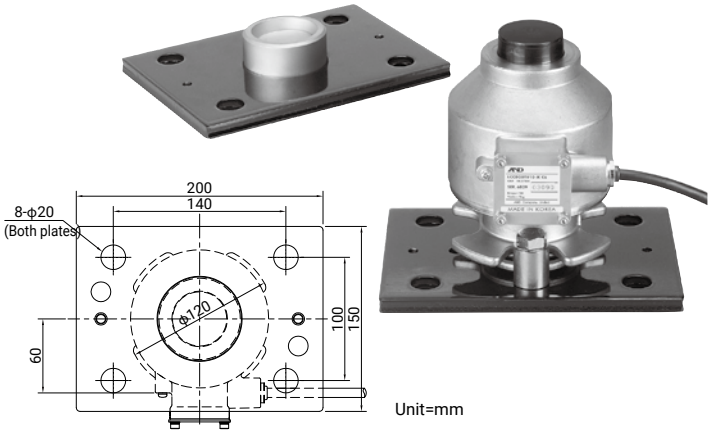
| | |
|---|---|
| Rated output (R.O.) | 2 mV/V±0.1 % |
| Safe overload | 150 % of R.C. |
| Combined error | 0.025 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Maximum excitation voltage | 15 VDC |
| Zero balance | ±1 % of R.O. |
| Input terminal resistance | 800±80 Ω |
| Output terminal resistance | 700±10 Ω |
| Insulation resistance | 5000 MΩ or more at 50 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.019 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.010 % of Load/10 °C Typ. |
| Cable thickness/length | 6-core shielded cable ϕ 8 / 12 m |
| Material | Load cell body: Alloy steel<br>Load cell case: Stainless steel |
| Dustproof/waterproof | IP68 (Water depth 1.5 m/100 hours) |
| Weight | Approx. 11 kg (w/ mounting plate) Approx. 6 kg (w/o mounting plate) |

## Column-type digital load cell for truck scale applications

# LCCD20 Series

98.07 kN (10 t) to 294.2 kN (30 t)

Featuring a sealed structure with an IP68 protection rating (submersible to 1.5 m depth for 100 hours) , this high-performance compression double convex type load cell is ideal for large hopper and truck scales. Comes with a mounting bracket equipped with anti-rotation function.






CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: DATA+ BLUE: DATA- YELLOW: SHIELD
The data polarity is defined as positive logic for '+' and negative logic for '-'.

### Specifications (*: made-to-order item)

| Model | Rated capacity (R.C.) | OIML Class | Mounting kit? (Y/N) |
|---|---|---|---|
| LCCD20-T010-K | 98.07 kN (10 t) | C4 | Yes |
| LCCD20-T020-K | 196.1 kN (20 t) | | |
| LCCD20-T030-K | 294.2 kN (30 t) | | |
| LCCD20-T010-KC6* | 98.07 kN (10 t) | C6 | |
| LCCD20-T020-KC6* | 196.1 kN (20 t) | | |
| LCCD20-T030-KC6* | 294.2 kN (30 t) | | |
| LCCD20-T010N-K* | 98.07 kN (10 t) | C4 | No |
| LCCD20-T020N-K* | 196.1 kN (20 t) | | |
| LCCD20-T030N-K* | 294.2 kN (30 t) | | |
| LCCD20-T010N-KC6* | 98.07 kN (10 t) | C6 | |
| LCCD20-T020N-KC6* | 196.1 kN (20 t) | | |
| LCCD20-T030N-KC6* | 294.2 kN (30 t) | | |

| | |
|---|---|
| Rated output (R.O.) | 10,000±5 : LCCD20-T010x-xx<br>20,000±10: LCCD20-T020x-xx<br>30,000±15: LCCD20-T030x-xx |
| Safe overload | 150 % of R.C. |
| Combined error | C4: 0.025 % of R.O.<br>C6: 0.016 % of R.O. |
| Recommended excitation voltage | 8 VDC |
| Maximum excitation voltage | 12 VDC |
| Temperature compensation range | -10 °C to 40 °C |
| Temperature effect on zero point | 0.019 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.010 % of Load/10 °C Typ. |
| Cable thickness/length | 4-core shielded cable φ8 / 12 m |
| Output signal | RS-485 2-wire type |
| Material | Load cell body: Alloy steel<br>Load cell case: Stainless steel |
| Dustproof/waterproof | IP68 (Water depth 1.5 m/100 hours) |
| Weight | Approx. 11 kg (with mounting brackets) ,<br>approx. 6 kg (load cell) |
| Surgecountermeasures | Built-in gas tube arrester etc. |
| Options | Digital load cell indicator (p.52), Accessories (p.39) |

## X-Y Force Type Load Cells

# X-Y Series

98.07 kN (10 t) to 294.2 kN (30 t)

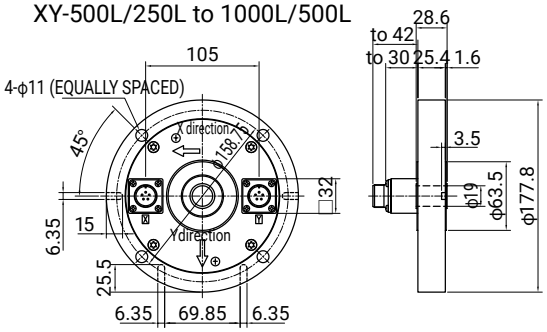
Simultaneous measurement of forces in the X and Y axes.


### Specifications

| Model | Rated capacity (R.C.) | Weight |
|---|---|---|
| XY-500L/250L | X : 5 kN (509.9 kg) | Approx. 3.5 kg |
| | Y : 2.5 kN (254.9 kg) | |
| XY-750L/250L | X : 7.5 kN (764.8 kg) | |
| | Y : 2.5 kN (254.9 kg) | |
| XY-1000L/500L | X : 10 kN (1,020 kg) | |
| | Y : 5 kN (509.9 kg) | |

| | |
|---|---|
| Rated output (R.O.) | 2.0394 mV/V±0.2% |
| Safe overload | 150 % of R.C. |
| Combined error | 0.2 % of R.O. |
| Recommended excitation voltage | 5 to 12 VDC |
| Temperature compensation range | -10 °C to 70 °C |
| Temperature effect on zero point | 0.05 % of R.O./10 °C |
| Temperature effect on span | 0.05 % of Load/10 °C Typ. |
| Cable thickness/length | φ7/10 m |
| Material | Tool steel |
| Dustproof/waterproof | IP54 |
| Options | Summing box (p.38) |

XY-500L/250L to 1000L/500L




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

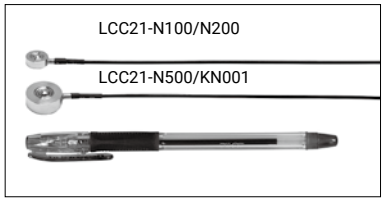
## Stainless steel button load cell

# LCC21 Series

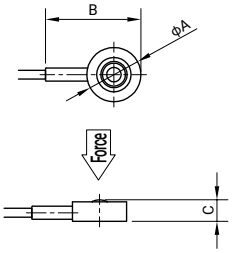
CE 100 N (10.20 kg) to 1 kN (102.0 kg)

Ideal for measuring load distribution and monitoring pressure changes during press fitting or press molding.

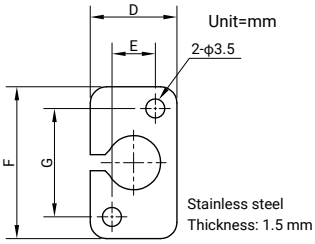
Mounting holder (standard accessory)




Load cell




Mounting holder (standard accessory)




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Unit=mm

| Model | A | B | C | D | E | F | G | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| LCC21-N100, N200 | 10 | 18 | 4 | 16 | 8 | 28 | 20 | 15 |
| LCC21-N500, KN001 | 16 | 24 | 7 | 22 | 14 | 32 | 24 | 20 |

### Specifications

| Model | Rated capacity (R.C.) | Natural frequency |
|---|---|---|
| LCC21-N100 | 100 N (10.20 kg) | 45 kHz |
| LCC21-N200 | 200 N (20.39 kg) | 55 kHz |
| LCC21-N500 | 500 N (50.99 kg) | 30 kHz |
| LCC21-KN001 | 1 kN (102.0 kg) | 35 kHz |

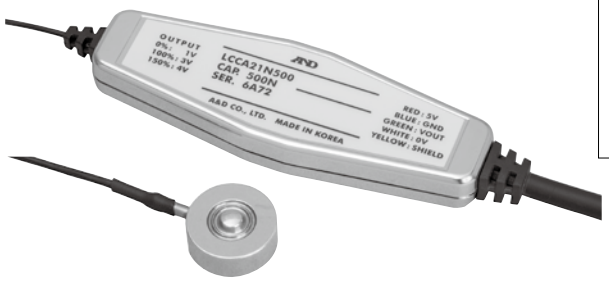
| | |
|---|---|
| Rated output (R.O.) | 1 mV/V or greater |
| Safe overload | 150 % of R.C. |
| Combined error | 0.5 % of R.O. |
| Recommended excitation voltage | 5 VDC |
| Maximum excitation voltage | 5 VDC |
| Zero balance | ±100 % of R.O. |
| Input terminal resistance | 1 kΩ±0.1 kΩ |
| Output terminal resistance | 1 kΩ±0.01 kΩ |
| Insulation resistance | 500 MΩ or more at 50 VDC |
| Temperature compensation range | 0 °C to 70 °C |
| Permissible temperature range | -10 °C to 80 °C |
| Temperature effect on zero point | 0.5 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.5 % of Load/10 °C Typ. |
| Cable thickness/length | ϕ2 mm/2 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP64 |
| Accessories | 1 x Mounting holder<br>AXP-4036220 (for N100 and N200)<br>AXP-4036221 (for N500 and KN001) |

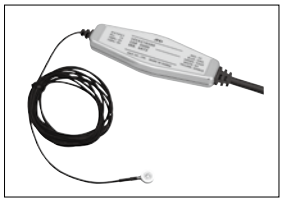
## Stainless steel button load cell with analog output

# LCCA21 Series

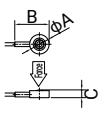
100 N (10.20 kg) to 1 kN (102.0 kg)

Equipped with amplifier for analog output, eliminating the need for calibration with weights. Ideal for measuring load distribution and monitoring pressure changes during press fitting or press molding.

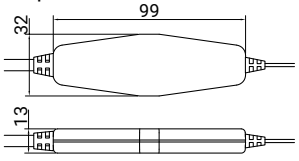




Load cell

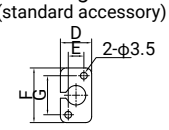



Amplifier



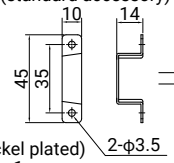

Unit=mm

Mounting holder
(standard accessory)



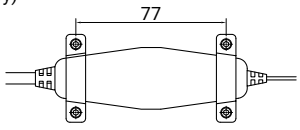

Stainless steel
Thickness: 1.5 mm

Amplifier holder
(standard accessory)




Steel (nickel plated)
Thickness: 1 mm

Installation drawing




CABLE COLOR CODE RED: EXC+ WHITE: EXC- GREEN: SIG+ BLUE: SIG- YELLOW: SHIELD

Unit=mm

| Model | ϕA | B | C | D | E | F | G | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| LCCA21-N100, N200 | 10 | 18 | 4 | 16 | 8 | 28 | 20 | 65 |
| LCCA21-N500, KN001 | 16 | 24 | 7 | 22 | 14 | 32 | 24 | 70 |

### Specifications

| Model | Rated capacity (R.C.) | Natural frequency (Load cell only) |
|---|---|---|
| LCCA21-N100 | 100 N (10.20 kg) | 45 kHz |
| LCCA21-N200 | 200 N (20.39 kg) | 55 kHz |
| LCCA21-N500 | 500 N (50.99 kg) | 30 kHz |
| LCCA21-KN001 | 1 kN (102.0 kg) | 35 kHz |

| | |
|---|---|
| Safe overload | 150 % of R.C. |
| Combined error | 0.5 % of R.O. |
| Power supply voltage | 5 VDC±0.25 V |
| Power consumption current | Less than 16 mA |
| Load resistance | More than 5 kΩ |
| Output voltage | 1 V to 4 V*[1] |
| Zero voltage | 1 V±0.04 V*[1] |
| Span voltage | 2 V±0.01 V*[1] |
| Insulation resistance | 500 MΩ or more at 50 VDC (The power supply and output are non-isolated) |
| Temperature compensation range | 0 °C to 70 °C |
| Permissible temperature range | -10 °C to 80 °C |
| Temperature effect on zero point | 0.6 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.6 % of Load/10 °C Typ. |
| Frequency characteristics | 100 Hz (-3 dB) |
| Cable thickness/length | From load cell to amplifier: ϕ2 mm, 2 m<br>From amplifier: ϕ6 mm, 0.5 m |
| Material | Stainless steel |
| Dustproof/waterproof | IP64 (Load cell) |
| Accessories | 1 x Mounting holder<br>AXP-4036220 (for N100 and N200)<br>AXP-4036221 (for N500 and KN001)<br>2 x Amplifier holder |

* 1 . RELATIONSHIP OF OUTPUT VOLTAGE TO LOAD

| Load [% of R.C.] | 0 | 100 | 150 |
|---|---|---|---|
| Output voltage | 1 V | 3 V | 4 V |

Stainless steel button load cell with USB output

# LCCU21 Series

CE 100 N (10.20 kg) to 1 kN (102.0 kg)

Easy measurements without the need for a power supply or calibration; just connect to a computer. Ideal for measuring load distribution and moni -toring pressure changes during press fitting or press molding.

HPDF

Mounting holder (standard accessory)

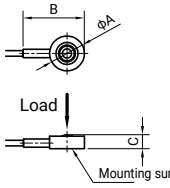
## Specifications

| Model | Rated capacity (R.C.) | Rated output (R.O.) | Natural frequency (Load cell only) |
|---|---|---|---|
| LCCU21-N100 | 100 N (10.20 kg) | 100.00±0.50 (0.5 %) | 45 kHz |
| LCCU21-N200 | 200 N (20.39 kg) | 200.00±1.00 (0.5 %) | 55 kHz |
| LCCU21-N500 | 500 N (50.99 kg) | 500.00±2.50 (0.5 %) | 30 kHz |
| LCCU21-KN001 | 1 kN (102.0 kg) | 1000.0±5.0 (0.5 %) | 35 kHz |

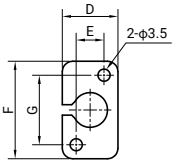
| | |
|---|---|
| Safe overload | 150 % of R.C. |
| Combined error | 0.5 % of R.O. |
| Power supply voltage | 5 VDC (USB bus power) |
| Power consumption current | 50 mA or less*1 |
| Zero balance | ±2 % of R.O. |
| Temperature compensation range | 0 °C to 70 °C |
| Permissible temperature range | -10 °C to 80 °C |
| Temperature effect on zero point | 0.6 % of R.O./10 °C Typ. |
| Temperature effect on span | 0.6 % of Load/10 °C Typ. |
| A/D conversion rate | 100 times/s |
| Digital filter | Select from None, 0.7, 1.0, 1.4, 2.0, 2.8, 4.0, 5.6, 8.0, 11.0 Hz (Initial value 1.0 Hz) |
| Communications standard | USB Ver. 2.0 Full Speed |
| USB Connector type | micro-B |
| Cable thickness/length | From load cell to case: ϕ2 mm, 2 m length<br>USB cable (accessory) : ϕ4 mm, 1.5 m length |
| Material | Stainless steel (Load cell) |
| Dustproof/waterproof | IP64 (Load cell) |
| Accessories | 1 x Mounting holder<br>USB cable (ϕ4 mm / 1.5 m) |
| Measurement software | WinCT-DLC Available for free download from our company's website |

*1:Reference value

Load cell



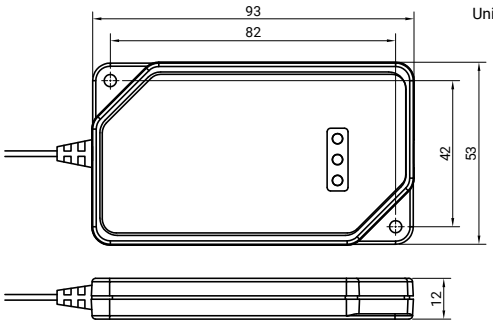

Mounting holder (standard accessory)




Stainless steel Thickness: 1.5 mm

Plastic case

Unit=mm




Unit=mm

| Model | ϕA | B | C | D | E | F | G | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| LCCU21-N100, N200 | 10 | 18 | 4 | 16 | 8 | 28 | 20 | 50 |
| LCCU21-N500, KN001 | 16 | 24 | 7 | 22 | 14 | 32 | 24 | 60 |

## WinCT-DLC Windows Data Acquisition Software

WinCT-DLC is "Windows data communication software" designed to transfer measurement data from USB output load cells to a computer. The measurement results can be saved as CSV or Excel spreadsheet format.


DOWNLOAD WINCT-DLC

| | |
|---|---|
| Supported Products | USB load cells made by A&D. (LCCU21/CMX-USB/LC1205-USB) |
| Sensor settings | Digital filter (cutoff frequency) settings<br>Sensor output rewrites |
| Offset setting | Available |
| Display | Peak Hold: Displays the maximum value during operation<br>Bottom Hold: Displays the minimum value during operation<br>Tare: Displays the tare value |
| Selection of the value to be recorded | Display Data: This mode records the display data into measurement value display.<br>Measurement Data: This mode records the value of set by [Zero Offset] subtracted from the output of the product. |
| Logging operation | Single Logging (Record when button is pressed) Continuous Logging |
| Continuous logging settings | Logging timer<br>Limit the number of logging data Max: 1,048,576 points |
| Data format | csv, xlsx |

| | |
|---|---|
| OS | Windows 7/8.1/10 (64-bit) *1 |
| USB port | One free port (USB 2.0 or higher) |
| Memory | 4 GB or more |
| Hard disk | 20 GB or more |
| Remarks | .NET Framework 4.5 or higher must be installed |

*1) The 32-bit version also works, but it is out of the guaranteed range. (Operation may stop during measurement.)

Dustproof and waterproof weighing platform

# SB Series

15 kg to 220 kg

A weighing platform that allows easy construction of a dustproof and waterproof (IP65 equivalent) weighing system.

Specifications

| Model | Rated capacity | Dimensions (W x D x H mm) | Weight |
|---|---|---|---|
| SB-15K10 | 15 kg | 250 x 250 x 102 to 112 | 4.5 kg |
| SB-60K11 | 60 kg | 424 x 330 x 105 to 115 | 8 kg |
| SB-100K12 | 100 kg | 530 x 390 x 129 to 139 | 14 kg |
| SB-200K12 | 220 kg | | |

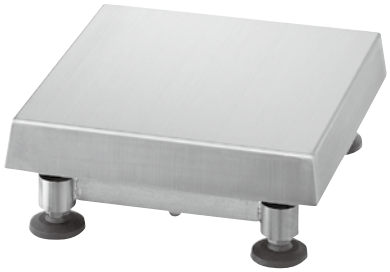
Cable length: 3 m
Linearity & hysteresis: 0.03 % of R.O.

Dustproof and waterproof weighing platform

# SB-SW Series

6 kg to 150 kg

High-pressure (up to 100 MPa) and high-temperature(80 °C) washable weighing platform. IP69K rated, stainless steel frame for easy cleaning and debris prevention.

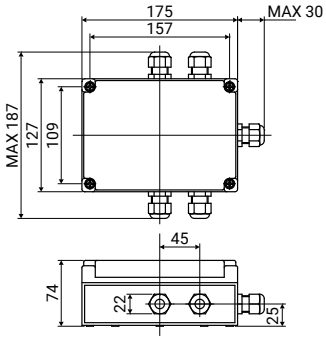


Specifications

| Model | Rated capacity | Dimensions (W x D x H mm) | Weight |
|---|---|---|---|
| SB-6K13-SW | 6 kg | 250 x 250 x 98 to 103 | 3.7 kg |
| SB-15K13-SW | 15 kg | | |
| SB-15K14-SW | 15 kg | 300 x 380 x 117.5 to 122.5 | 8.2 kg |
| SB-30K14-SW | 30 kg | | |
| SB-60K14-SW | 60 kg | | |
| SB-150K14-SW | 150 kg | | |
| SB-60K15-SW | 60 kg | 390 x 530 x 126.5 to 131.5 | 11.2 kg |
| SB-150K15-SW | 150 kg | | |

Cable length: 1.5 m
Linearity & hysteresis: 0.03 % of R.O.
Pan material: Stainless steel (SUS304)

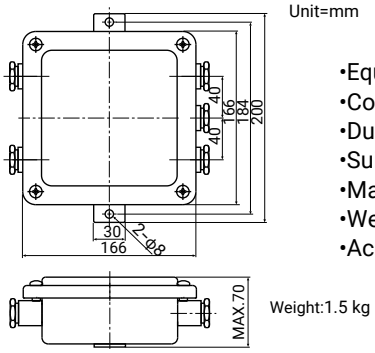
# AD-4390-6 6-wire/4-wire load cell compatible summing box NEW




Unit=mm

- Equipped with load cell output adjustment function
- Compatible with both 6-wire and 4-wire load cells
- Connects up to 6 load cells
- Compatible load cell output resistance: 350 Ω to 2000 Ω
- Easy wiring with push-in terminal blocks
- Dust and waterproof: Equivalent to IP67
- Suitable load cell cable diameter: ϕ5 to ϕ10 mm
- Material - Body: Polyester; Cable gland: Polyamide
- Weight: Approx. 550 g
- Accessories: 3 sealing plugs

# AD-4379SUS Stainless steel summing box

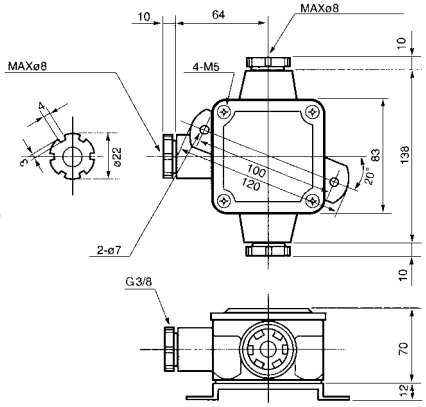



Unit=mm

Weight:1.5 kg

- Equipped with load cell output adjustment function
- Connects up to 4 load cells
- Dust and waterproof: IP67
- Suitable load cell cable diameter: ϕ4 to ϕ12 mm
- Material: Stainless steel (SUS304)
- Weight: Approx. 1.5 kg
- Accessories: Rubber bush

# AD-4382 Summing box

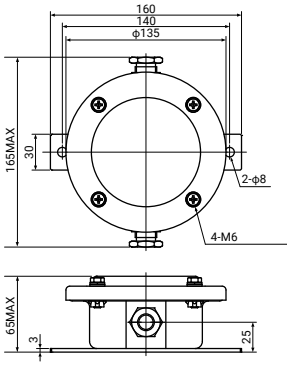



Unit=mm

- Equipped with load cell output adjustment function
- Connects up to 2 load cells
- Dust and waterproof: IP56
- Suitable load cell cable diameter: ϕ4 to ϕ8 mm
- Material: Stainless steel (SUS304)
- Weight: Approx. 0.7 kg
- Accessories: Rubber bush

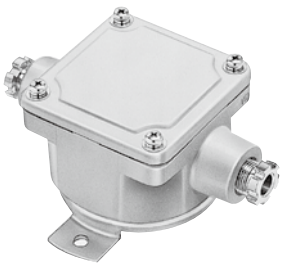
# AD-4380SUS/AD-4380 Junction box

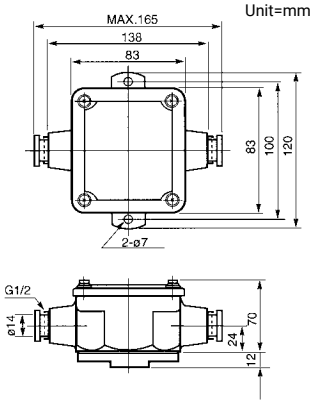
**AD-4380SUS**




- Junction box for extending load cell cables
- Material: Stainless steel (SUS304)
- Dust and waterproof: IP67
- Accessories: Rubber bush

**AD-4380**





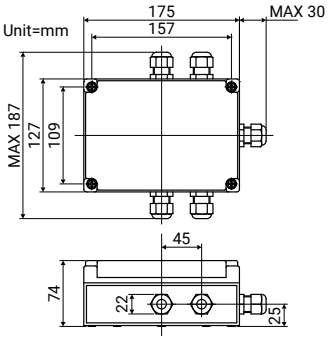

Unit=mm

- Junction box for extending load cell cables
- Dust and waterproof: IP56
- Accessories: Rubber bush

# AD-4388-4/AD-4388-6 Junction box for digital load cells

**AD-4388-4**

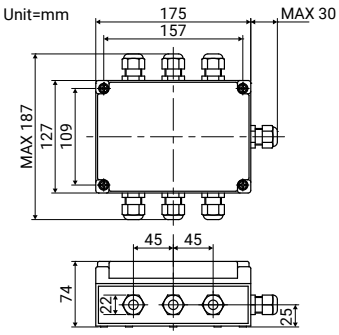
AD4388-4
(for 4 load cells)




•Dust and waterproof : IP67

**AD-4388-6**

AD4388-6
(for 6 load cells)



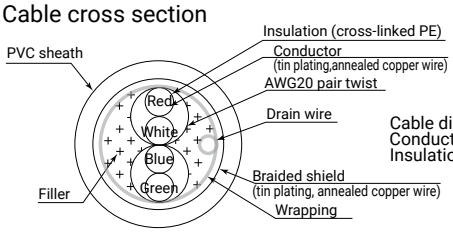

•Dust and waterproof : IP67

# Cables for digital load cells

4-core shielded, with drain wire, length 5 m to 100 m

| Model | Length |
|---|---|
| AX-KO3217-5M | 5 m |
| AX-KO3217-10M | 10 m |
| AX-KO3217-20M | 20 m |
| AX-KO3217-30M | 30 m |
| AX-KO3217-50M | 50 m |
| AX-KO3217-100M | 100 m |

Cable cross section




Cable diameter ϕ9.5 mm
Conductor cross-sectional area 0.5 mm$^2$
Insulation diameter 1.6 mm

| Core No. | Insulator color |
|---|---|
| 1 | Red, White |
| 2 | Green, Blue |

# AD-4389 Digital load cell simulator

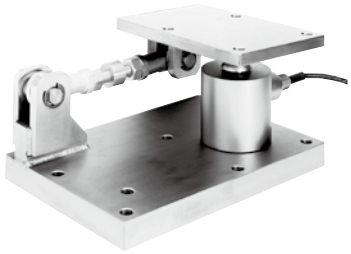
Digital load cell simulator that operates equivalently to our digital load cells. It can supply simulated weight values to weighing indicators and truck scales without the need for actual test weights.

Specifications

| | |
|---|---|
| Communication standard | EIA RS-485 compliant |
| Character bit length | 8 bit |
| Parity | Even |
| Stop bit length | 1 bit |
| Baud rate | 38,400 bps |
| Power supply voltage | 6 to 12 VDC<br>supplied by the digital load cell indicator |
| External dimensions | 150 (W) x 110 (H) x 100 (D) mm |
| Weight | Approx. 1.1 kg |
| Case material/color | Aluminum die-cast / Gray |
| Material of handle/knob | Aluminum |

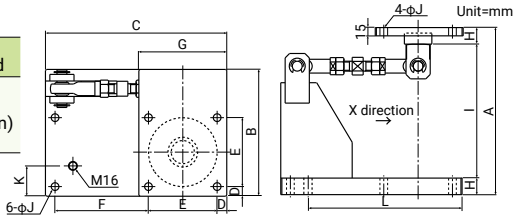
## Mounting kit with integrated horizontal stops for CP series

# LCZAP-0405 / LCZAP-0408 / LCZAP-0411



| Model | Applicable CP/ CP-F model | Allowable lateral load |
|---|---|---|
| LCZAP-0405 | 200L to 1 | 20 kN (X direction) |
| LCZAP-0408 | 2 to 5 | |
| LCZAP-0411* | 10 | |

*Special order model. Please contact us for a quotation.

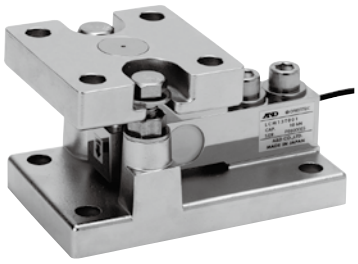



| Model | A | B | C | D | E | F | G | H | I | J | K | L | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCZAP-0405 | 154 | 170 | 300 | 11.5 | 77 | 200 | 100 | 15 | 124 | 8 | 25 | 250 | 12 |
| LCZAP-0408 | 213 | 200 | 315 | 12.5 | 105 | 185 | 130 | 23 | 167 | 12 | 40 | 265 | 20 |
| LCZAP-0411 | 303 | 230 | 330 | 17.5 | 125 | 170 | 160 | 30 | 243 | 14 | 55 | 280 | 30 |

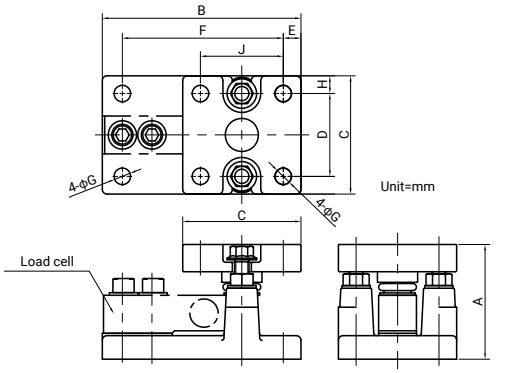
Unit=mm Weights exclude load cells.

## Mounting kit with lift-off protection and horizontal stops for LCM13 / LCM19 series

# LCZAP-1413 / LCZAP-1414 / LCZAP-1415



| Model | Applicable model | Allowable lateral load | Allowable lifting force | Allowable movement |
|---|---|---|---|---|
| LCZAP-1413 | LCM13-K100, K200, K300, K500, T001, T1.5, LCM19-K500, T001, T1.5 | 6 kN | 20 kN | 2 mm (all directions) |
| LCZAP-1414 | LCM13-T002, T003, LCM19-T002 | 12 kN | 30 kN | 2 mm (all directions) |
| LCZAP-1415 | LCM13-T005 | 20 kN | 40 kN | 2 mm (all directions) |



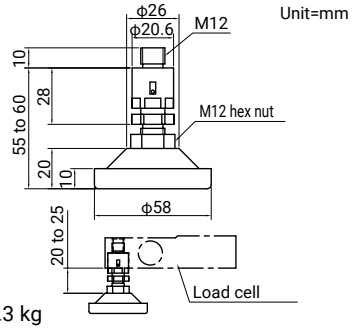

| Model | A | B | C | D | E | F | ΦG | H | J | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| LCZAP-1413 | 97 | 168 | 100 | 70 | 15 | 136 | 14 | 15 | 70 | 3.4 |
| LCZAP-1414 | 116 | 212 | 120 | 84 | 18 | 175 | 14 | 18 | 84 | 6.0 |
| LCZAP-1415 | 121 | 227 | 150 | 100 | 18 | 190 | 14 | 25 | 114 | 12.0 |

Unit=mm Weights exclude load cells.

## Swivel foot for LCM13 / LCM19 series

# LCZAFT-01S

| Applicable load cell |
|---|
| LCM13-K100, K200, K300, K500, T001, T1.5<br>LCM19-K500, T001, T1.5 |



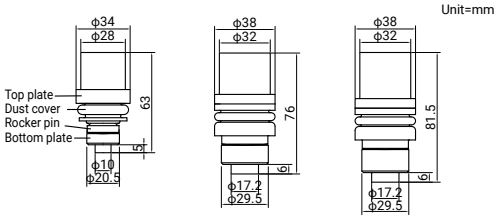

Weight:0.3 kg

## Rocker pin for LCM13 / LCM19 series

# AXP-LCZARP


| Model | Applicable load cell | Weight(g) |
|---|---|---|
| AXP-LCZARP-01S | LCM13-K100, K200, K300, K500, T001, T1.5, LCM19-K500, T001, T1.5 | 240 |
| AXP-LCZARP-02S | LCM13-T002, T003, LCM19-T002 | 400 |
| AXP-LCZARP-03S | LCM13-T005 | 430 |

AXP-LCZARP-01S AXP-LCZARP-02S AXP-LCZARP-03S



# Load Cell Mounting Accessories

## Compression Fittings for LC1205 / LC1216 / LC1122

### Bearing plate LCBP

External Equipment Installation Side

Load Cell Side

LCBP-1

### Mounting plate LCMP

External Equipment Installation Side

Load Cell Side

LCMP-1

### Load button LCLB

LCLB-4

LCLB-5

### Buttonhole plate LCBHP

External Equipment Installation Side

Load Cell Side

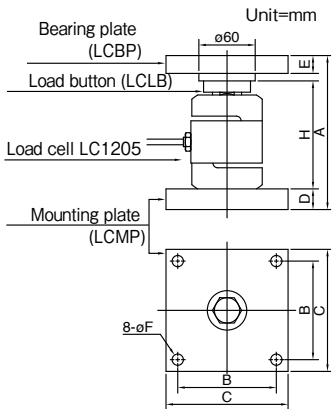
LCBHP-2

**When mounted on LC1205**

| Model | Single convex fitting | | | | Double convex fitting | | |
|---|---|---|---|---|---|---|---|
| | Bearing plate | Mounting plate | Load button | Bolt size | Buttonhole plate | Load button | Bolt size |
| LC1205-K020, K050, K100 | LCBP-1 | LCMP-1 | LCLB-1 | M6 | LCBHP-1 | LCLB-1 | M6 |
| LC1205-K200, K500 | LCBP-1 | LCMP-2 | LCLB-2 | M6 | LCBHP-1 | LCLB-2 | M6 |
| LC1205-T001A, T002 | LCBP-2 | LCMP-4 | LCLB-4 | M10 | LCBHP-2 | LCLB-4 | M10 |
| LC1205-T005 | LCBP-2 | LCMP-5 | LCLB-5 | M10 | LCBHP-3 | LCLB-5 | M10 |

*The mounting plate comes with load cell mounting bolts.

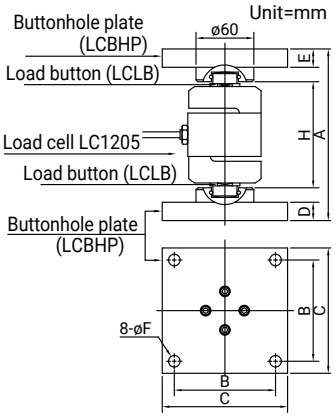
•Single Convex Installation




Unit=mm

| Model | A | B | C | D | E | ϕF | H |
|---|---|---|---|---|---|---|---|
| LC1205-K020,K050, K100 | 115 | 77 | 100 | 16 | 16 | 8 | 72 |
| LC1205-K200, K500 | 115 | 77 | 100 | 16 | 16 | 8 | 72 |
| LC1205-T001A,T002 | 164 | 105 | 130 | 22 | 19 | 12 | 115 |
| LC1205-T005 | 167 | 105 | 130 | 22 | 19 | 12 | 118 |

•Double Convex Installation




Unit=mm

| Model | A | B | C | D | E | ϕF | H |
|---|---|---|---|---|---|---|---|
| LC1205-K020,K050, K100 | 120 | 77 | 100 | 16 | 16 | 8 | 72 |
| LC1205-K200, K500 | 120 | 77 | 100 | 16 | 16 | 8 | 72 |
| LC1205-T001A,T002 | 178 | 105 | 130 | 19 | 19 | 12 | 110 |
| LC1205-T005 | 190 | 105 | 130 | 19 | 19 | 12 | 116 |

# Compression Fittings for LC1205 / LC1216 / LC1122

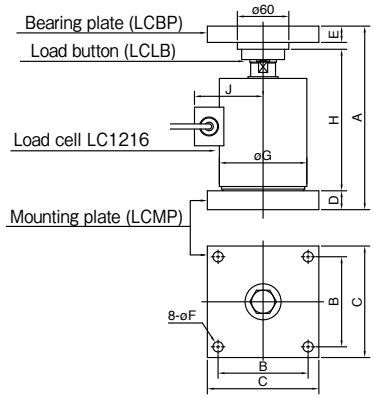
### When mounted on LC1216

| Model | Single convex fitting | | | | Double convex fitting | | |
|---|---|---|---|---|---|---|---|
| | Bearing plate | Mounting plate | Load button | Bolt size | Buttonhole plate | Load button | Bolt size |
| LC1216-K100 | LCBP-1 | LCMP-1 | LCLB-1 | M6 | LCBHP-1 | LCLB-1 | M6 |
| LC1216-K200, K500 | LCBP-1 | LCMP-2 | LCLB-2 | M6 | LCBHP-1 | LCLB-2 | M6 |
| LC1216-T001A | LCBP-2 | LCMP-4 | LCLB-4 | M10 | LCBHP-2 | LCLB-4 | M10 |
| LC1216-T002A, T005 | LCBP-2 | LCMP-5 | LCLB-5 | M10 | LCBHP-3 | LCLB-5 | M10 |

*The mounting plate comes with load cell mounting bolts.

•Single Convex Installation

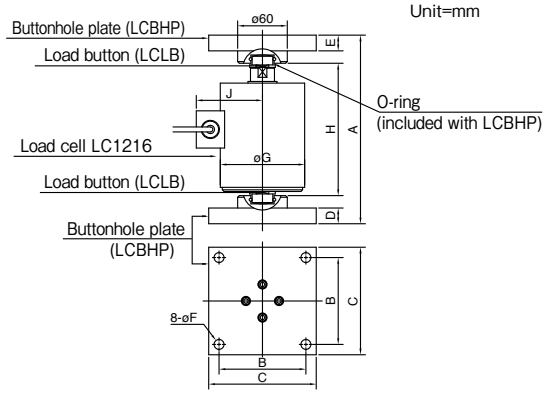
Unit=mm




Unit=mm

| Model | A | B | C | D | E | ϕF | ϕG | H | J |
|---|---|---|---|---|---|---|---|---|---|
| LC1216-K100 | 155 | 77 | 100 | 16 | 16 | 8 | 77 | 114 | 62 |
| LC1216-K200,K500 | 155 | 77 | 100 | 16 | 16 | 8 | 77 | 114 | 62 |
| LC1216-T001A, | 214 | 105 | 130 | 22 | 19 | 12 | 102 | 165 | 80 |
| LC1216-T002A,T005 | 247 | 105 | 130 | 22 | 19 | 12 | 102 | 198 | 80 |

•Double Convex Installation




Unit=mm

Unit=mm

| Model | A | B | C | D | E | ϕF | ϕG | H | J |
|---|---|---|---|---|---|---|---|---|---|
| LC1216-K100 | 160 | 77 | 100 | 16 | 16 | 8 | 77 | 110 | 62 |
| LC1216-K200,K500 | 160 | 77 | 100 | 16 | 16 | 8 | 77 | 110 | 62 |
| LC1216-T001A, | 228 | 105 | 130 | 19 | 19 | 12 | 102 | 160 | 80 |
| LC1216-T002A,T005 | 270 | 105 | 130 | 19 | 19 | 12 | 102 | 196 | 80 |

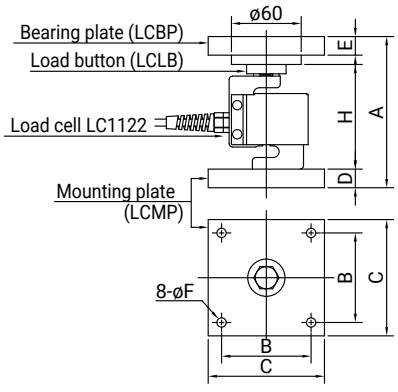
### When mounted on LC1122

| Model | Single convex fitting | | | | Double convex fitting | | |
|---|---|---|---|---|---|---|---|
| | Bearing plate | Mounting plate | Load button | Bolt size | Buttonhole plate | Load button | Bolt size |
| LC1122-K050, K100 | LCBP-1 | LCMP-1 | LCLB-1 | M6 | LCBHP-1 | LCLB-1 | M6 |
| LC1122-K250, K500 | LCBP-1 | LCMP-2 | LCLB-2 | M6 | LCBHP-1 | LCLB-2 | M6 |

*The mounting plate comes with load cell mounting bolts.

•Single Convex Installation

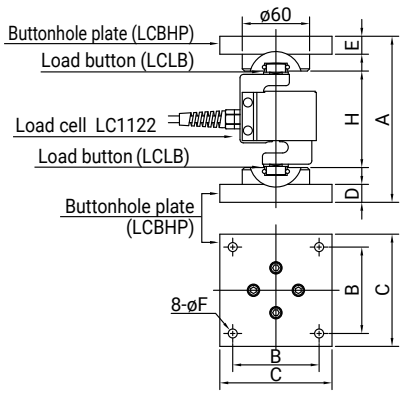
Unit=mm




Unit=mm

| Model | A | B | C | D | E | ϕF | H |
|---|---|---|---|---|---|---|---|
| LC1122-K050, K100 | 131 | 77 | 100 | 16 | 16 | 8 | 90 |
| LC1122-K250, K500 | 131 | 77 | 100 | 16 | 16 | 8 | 90 |

•Double Convex Installation




Unit=mm

Unit=mm

| Model | A | B | C | D | E | ϕF | H |
|---|---|---|---|---|---|---|---|
| LC1122-K050, K100 | 136 | 77 | 100 | 16 | 16 | 8 | 86 |
| LC1122-K250, K500 | 136 | 77 | 100 | 16 | 16 | 8 | 86 |

# Compression Fittings for CP, C2Z1, C2F1, C2X1, CMX, CM

Bearing plate
BP

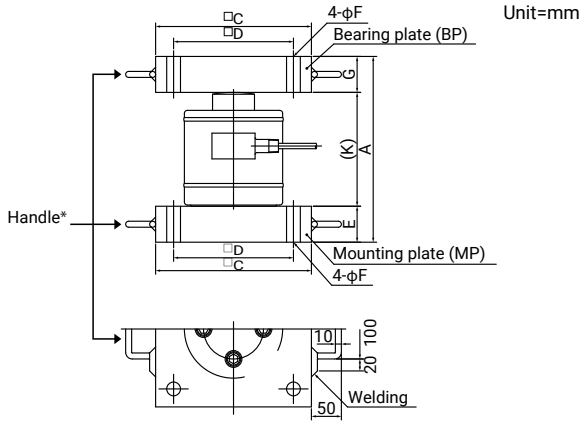
Mounting plate
MP

Expansion relief plate
EA

When mounting the load cell, please use the bearing plate and mounting plate.
If bending loads on the load cell are expected due to thermal expansion, please use the expansion relief plate.

**• Mounting Diagram for Bearing Plate and Mounting Plate for CP, C2Z1, C2F1, C2X1, CMX, CM**

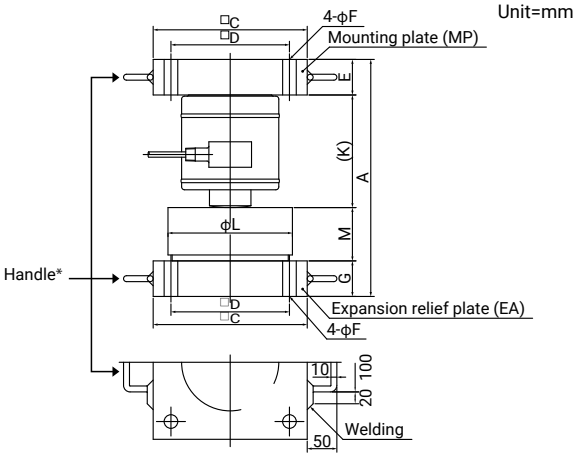
Unit=mm




*BP-30, MP-30, and EA-30 and above come with handles

**• Mounting Diagram for Expansion Relief Plate and Mounting Plate for CP, C2Z1, C2F1, C2X1, CMX, CM**

Unit=mm




| Applicable load cell | Bearing Plate & Mounting Plate Dimension Table | | | | | | | | | Expansion Relief Plate & Mounting Plate Dimension Table | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model | A | C | D | E | ϕF | G | K | Weight (kg) | Model | A | C | D | E | ϕF | G | ϕL | K | M | N | Weight (kg) |
| CP-20L to 100L | BP-1,MP-1 | 152 | 100 | 77 | 15 | 8 | 15 | 122 | 3 | EA-1,MP-1 | 177 | 100 | 77 | 15 | 8 | 15 | 60 | 122 | 25 | ±8 | 4 |
| CP-200L to 1 | BP-1,MP-1 | 154 | 100 | 77 | 15 | 8 | 15 | 124 | 3 | EA-1,MP-1 | 179 | 100 | 77 | 15 | 8 | 15 | 60 | 124 | 25 | ±8 | 4 |
| CP-2 to 5 | BP-2,MP-2 | 213 | 130 | 105 | 23 | 12 | 23 | 167 | 6 | EA-2,MP-2 | 248 | 130 | 105 | 23 | 12 | 23 | 90 | 167 | 35 | ±8 | 8 |
| CP-10 | BP-10,MP-10 | 303 | 160 | 125 | 30 | 14 | 30 | 243 | 12 | EA-10,MP-10 | 348 | 160 | 125 | 30 | 14 | 30 | 110 | 243 | 45 | ±10 | 16 |
| CP-20 | BP-20,MP-20 | 378 | 200 | 150 | 30 | 14 | 30 | 318 | 18 | EA-20,MP-20 | 443 | 200 | 150 | 30 | 14 | 30 | 130 | 318 | 65 | ±10 | 26 |
| CP-30 | BP-30,MP-30 | 480 | 240 | 180 | 40 | 19 | 40 | 400 | 36 | EA-30,MP-30 | 545 | 240 | 180 | 40 | 19 | 40 | 160 | 400 | 65 | ±15 | 46 |
| CP-50 | BP-100,MP-110 | 620 | 260 | 200 | 60 | 23 | 60 | 500 | 65 | EA-100,MP-110 | 710 | 260 | 200 | 60 | 23 | 60 | 210 | 500 | 90 | ±15 | 96 |
| CP-100 | BP-210,MP-210 | 800 | 360 | 280 | 60 | 27 | 60 | 680 | 130 | EA-200,MP-210 | 905 | 360 | 280 | 60 | 27 | 60 | 300 | 680 | 105 | ±15 | 180 |
| C2Z1-500L to 2 | BP-2,MP-2 | 131 | 130 | 105 | 23 | 12 | 23 | 85 | 6 | EA-2,MP-2 | 166 | 130 | 105 | 23 | 12 | 23 | 90 | 85 | 35 | ±8 | 8 |
| C2F1-500L to 2 | BP-2,MP-2 | 151 | 130 | 105 | 23 | 12 | 23 | 105 | 6 | EA-2,MP-2 | 186 | 130 | 105 | 23 | 12 | 23 | 90 | 105 | 35 | ±8 | 8 |
| C2Z1-5,10 | BP-10,MP-10 | 170 | 160 | 125 | 30 | 14 | 30 | 110 | 12 | EA-10,MP-10 | 215 | 160 | 125 | 30 | 14 | 30 | 110 | 110 | 45 | ±10 | 16 |
| C2F1-5,10 | BP-10,MP-10 | 160 | 160 | 125 | 30 | 14 | 30 | 100 | 12 | EA-10,MP-10 | 205 | 160 | 125 | 30 | 14 | 30 | 110 | 100 | 45 | ±10 | 16 |
| C2Z1-20 | BP-20,MP-20 | 205 | 200 | 150 | 30 | 14 | 30 | 145 | 18 | EA-20,MP-20 | 270 | 200 | 150 | 30 | 14 | 30 | 130 | 145 | 65 | ±10 | 26 |
| C2F1-20 | BP-20,MP-20 | 180 | 200 | 150 | 30 | 14 | 30 | 120 | 18 | EA-20,MP-20 | 245 | 200 | 150 | 30 | 14 | 30 | 130 | 120 | 65 | ±10 | 26 |
| C2X1-30,50 | BP-50,MP-50 | 240 | 220 | 160 | 40 | 19 | 40 | 160 | 30 | EA-50,MP-50 | 305 | 220 | 160 | 40 | 19 | 40 | 160 | 160 | 65 | ±15 | 40 |
| C2X1-100 | BP-100,MP-100 | 310 | 260 | 200 | 60 | 23 | 60 | 190 | 64 | EA-100,MP-100 | 400 | 260 | 200 | 60 | 23 | 60 | 210 | 190 | 90 | ±15 | 86 |
| C2X1-200 | BP-200,MP-200 | 390 | 280 | 200 | 80 | 27 | 80 | 230 | 100 | EA-200,MP-200 | 475 | 360 (EA) / 280 (MP) | 280 (EA) / 200 (MP) | 80 | 27 | 60 | 300 | 230 | 105 | ±15 | 170 |
| C2X1-300 | BP-300,MP-300 | 500 | 280 | 200 | 80 | 35 | 100 | 320 | 110 | EA-300,MP-300 | 585 | 400 (EA) / 280 (MP) | 320 (EA) / 200 (MP) | 80 | 35 | 60 | 350 | 320 | 125 | ±15 | 222 |
| C2X1-500 | BP-500,MP-500 | 630 | 380 | 280 | 100 | 40 | 130 | 400 | 260 | EA-500,MP-500 | 745 | 500 (EA) / 380 (MP) | 400 (EA) / 280 (MP) | 100 | 40 | 80 | 430 | 400 | 165 | ±15 | 457 |
| CMX-50L to 2 | BP-2-A,MP-2-A | 55 | 130 | 105 | 15 | 12 | 15 | 25 | 4 | EA-2,MP-2-A | 98 | 130 | 105 | 15 | 12 | 23 | 90 | 25 | 35 | ±8 | 7 |
| CM-5 to 20 | BP-10,MP-10-A | 110 | 160 | 125 | 30 | 14 | 30 | 50 | 12 | EA-10,MP-10-A | 155 | 160 | 125 | 30 | 14 | 30 | 110 | 50 | 45 | ±10 | 16 |

Unit=mm N: Allowable movement range

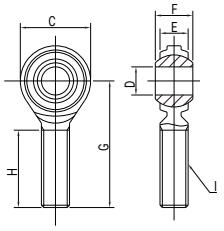
# Rod End Bearing LCB / LCZARE

| Model | Compatible model | Material | G | H | Screw (l) | Weight(g) |
|---|---|---|---|---|---|---|
| LCB-A6 | LC1205-K020, K050, K100, LC1216-K100, LC1122-K050, K100 | Tool steel | 38 | 24 | M6 x 1 | 17 |
| LCB-A12 | LC1205-K200, K500, LC1216-K200, K500, LC1122-K250, K500 | | 56 | 35 | M12 x 1.75 | 85 |
| LCB-A18 | LC1205-T001A, LC1216-T001A | | 76 | 46 | M18 x 1.5 | 250 |
| LCB-18 | LC1205-T002 | | 79.5 | 46 | M18 x 1.5 | 250 |
| LCB-24-2T | LC1216-T002A | | 94 | 57 | M24 x 2 | 575 |
| LCB-24-5T | LC1205-T005, LC1216-T005 | | 105 | 59 | M24 x 2 | 1,150 |

| Model | Compatible model | Material | Screw | Radial Static Breaking Load (kN) | Radial Limit Load (kN) | Weight (g) |
|---|---|---|---|---|---|---|
| LCZARE-12S | LCS15-K500 | Stainless steel | M12 x 1.75 | 19.1 | 12.74 | 75 |
| LCZARE-18S | LCS15-T001 | Stainless steel | M18 x 1.5 | 37.2 | 24.99 | 225 |
| LCZARE-24S | LCS15-T002 | Stainless steel | M24 x 2 | 69.6 | 44.1 | 523 |

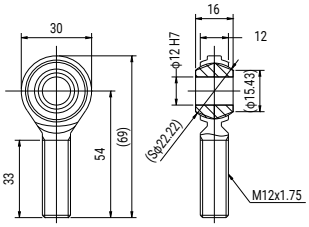
*When using stainless steel rod end bearings, please keep the working load below half of the rated capacity.
* One standard stainless steel nut is included.

LCB

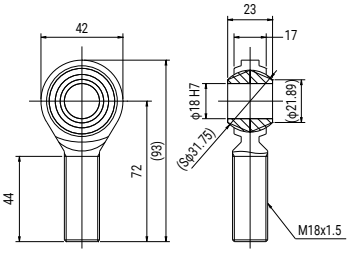



One standard nut is included.

LCZARE-12S

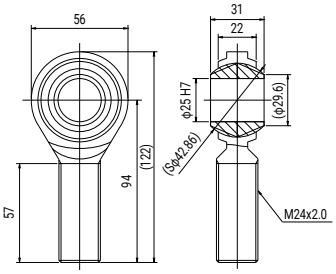



LCZARE-18S

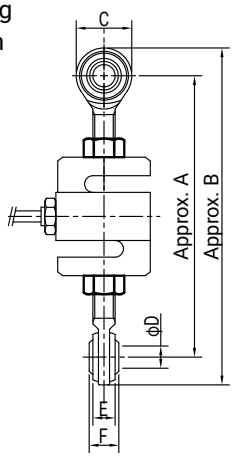



LCZARE-24S

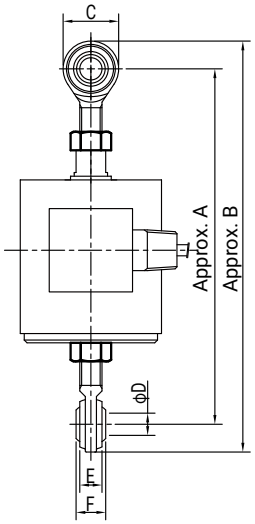
Unit=mm




•Mounting Diagram LC1205

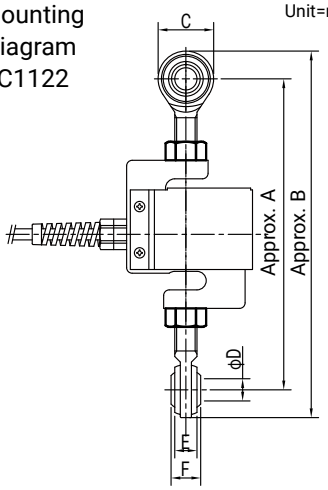



•Mounting Diagram LC1206




•Mounting Diagram LC1122

Unit=mm




LC1205

Unit=mm

| Model | Rod End Bearing | A | B | C | φDH7 | E | F |
|---|---|---|---|---|---|---|---|
| LC1205-K020, K050, K100 | LCB-A6 | 116 | 134 | 19 | 6 | 6 | 9 |
| LC1205-K200, K500 | LCB-A12 | 152 | 182 | 32 | 12 | 11 | 16 |
| LC1205-T001A | LCB-A18 | 194 | 236 | 44 | 18 | 15 | 23 |
| LC1205-T002 | LCB-18 | 214 | 257 | 43 | 18 | 16.3 | 20 |
| LC1205-T005 | LCB-24-5T | 268 | 338 | 70 | 25 | 25.3 | 35 |

LC1216

Unit=mm

| Model | Rod End Bearing | A | B | C | φDH7 | E | F |
|---|---|---|---|---|---|---|---|
| LC1216-K100 | LCB-A6 | 160 | 178 | 18 | 6 | 7 | 9 |
| LC1216-K200, K500 | LCB-A12 | 194 | 224 | 30 | 12 | 12 | 16 |
| LC1216-T001A | LCB-A18 | 270 | 312 | 42 | 18 | 17 | 23 |
| (LC1216-T002) | LCB-18 | 285 | 328 | 43 | 18 | 16.3 | 20 |
| LC1216-T002A | LCB-24-2T | 320 | 376 | 56 | 25 | 22 | 31 |
| LC1216-T005 | LCB-24-5T | 342 | 412 | 70 | 25 | 25.3 | 35 |

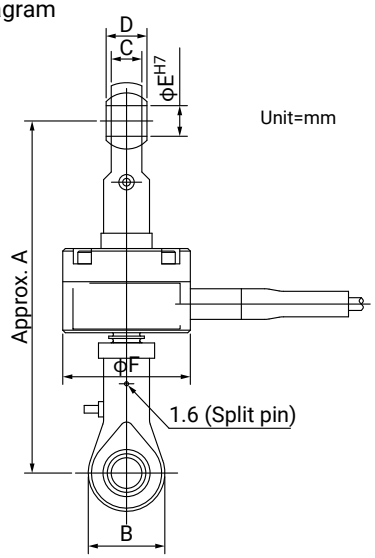
LC1122

Unit=mm

| Model | Rod End Bearing | A | B | C | φDH7 | E | F |
|---|---|---|---|---|---|---|---|
| LC1122-K050, K100 | LCB-A6 | 132 | 150 | 18 | 6 | 7 | 9 |
| LC1122-K250, K500 | LCB-A12 | 168 | 198 | 30 | 12 | 12 | 16 |

# Rod End Bearing SM / S

•Mounting Diagram
UM

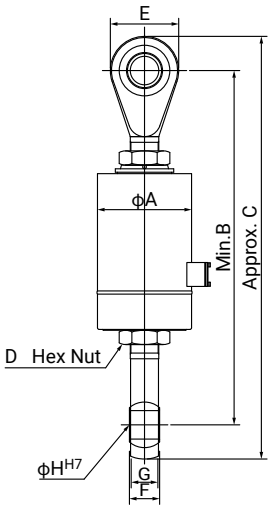



Unit=mm

| Model | Rod End Bearing | A | B | C | D | φE | φF | Weight (kg) |
|---|---|---|---|---|---|---|---|---|
| UM (TM) -50L-A, 100L-A, 200L | SM-1 | 138 | 30 | 12 | 16 | 12 | 50 | 0.2 |
| UM (TM) -500L to 1 | SM-2A | 170 | 38 | 15 | 21 | 16 | 62 | 0.4 |

NOTE)
When using TM, it is recommended to use rod end bearings (tension-only) to prevent bending loads on the load cell.

•Mounting Diagram
TP

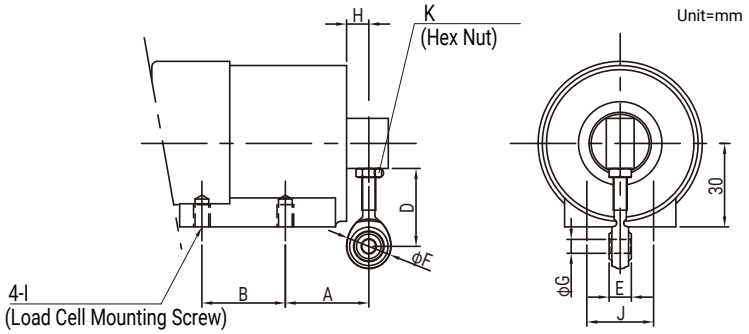



Unit=mm

| Model | Rod End Bearing | φA | Min.B | C | D | E | F | G | φH | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| TP-20L to 100L | S-1 | 89 | 183 | 209 | M10 x 1.25 | 26 | 14 | 10.5 | 10 | 0.2 |
| TP-200L to 1 | S-2 | 89 | 195 | 229 | M10 x 1.25 | 34 | 16 | 13.3 | 12 | 0.3 |
| TP-2 to 5 | S-3A | 89 | 280 | 342 | M24 x 2 | 62 | 28 | 19.3 | 22 | 1.4 |
| TP-10 | S-4 | 125 | 461 | 561 | M39 x 2 | 100 | 43 | 39 | 40 | 9 |
| TP-20 | S-5 | 165 | 622 | 742 | M50 x 2 | 120 | 53 | 49 | 50 | 17 |

NOTE)
The Min.B dimension is the minimum installation dimension when the shackle is fully screwed in. The installation should be within the range of Min.B+2, -0 (adjust the shackle position by unscrewing the shackle approximately 1/2 turn) .

•Mounting Diagram
U2Z1




Unit=mm

| Model | Rod End Bearing | A | B | D | E | F | φG | H | I | J | K | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| U2Z1-1L to 10L-A | S-0.5 | 30 | 30 | 28-24 | 8 | 16 | 5 | 8 | M6 DP8 | 24 | M5 | 0.3 |
| U2Z1-20L to 100L-A | S-1 | 25 | 30 | 36-31 | 14 | 26 | 10 | 13 | M8 DP10 | 24 | M10 x 1.25 | 0.4 |
| U2Z1-200L,500L-A | S-2 | 90 | 30 | 39.5-29.5 | 16 | 34 | 12 | 15 | M10 DP16 | 30 | M12 x 1.25 | 0.5 |

NOTE)
1. Allowable tilt angle: ±5°
2. Tighten the hex nut while applying the specified load.

# WEIGHING INDICATOR

## Overview of Indicators

A&D indicators convert signals from load cells and digitally display the load. There are various models, some equipped with control functions for configuring different types of weighing instruments such as hopper scales, packer scales, checkweighers, and truck scales, while others feature various interfaces for connecting to external control devices like PLCs.

## Terminology of Indicators

- **Input sensitivity:** The minimum input voltage required to change the indicated value by one scale division. ( μV/d)
- **Zero adjustment range:** The range of load cell signal voltages within which zero point adjustment can be made.
- **Load cell excitation voltage:** Voltage applied to the input terminals of the connected load cell.
- **Temperature coefficient:** Rate of change in characteristics per degree Celsius of ambient temperature change.
- **Non-linearity:** The error of the actual indicated value relative to the hypothetical straight line connecting the zero point and the maximum value.
- **A/D resolution:** The resolution of the A/D converted load cell signal used for internal calculations.
- **Display resolution:** The resolution of the load cell signal that the indicator can display.
- **Sampling speed:** The number of times per second the indicator converts the load cell signal.
- **Digital span:** A function that allows the calibration (adjustment) of the indicator and load cell without using an actual load, provided the range (output characteristics) of the load cell signal is known in advance.
- **Zero point:** The state with no load. The refe -rence point of the scale.
- **Zero-setting/push-zero:** A function that sets the display (total) to zero when there is no load.
- **Tare:** A function that sets the display (net weight) to zero when there is a container (tare) such as a bag or bottle holding the item being weighed.
- **Gross:** The measured value displayed when the tare function is not active.
- **Net:** The mass excluding the tare weight.
- **Interface:** The output of data from the indicator or the input for giving instructions to the indicator. Examples include relay output, BCD output, RS-232C, RS-422, RS-485, Modbus RTU, CC-Link, and 4-20 mA analog output.

## The High-Performance Digital Filter (HPDF) HPDF

### Newly Developed High-Performance Digital Filter (HPDF) that Excels in Vibrating Environments!

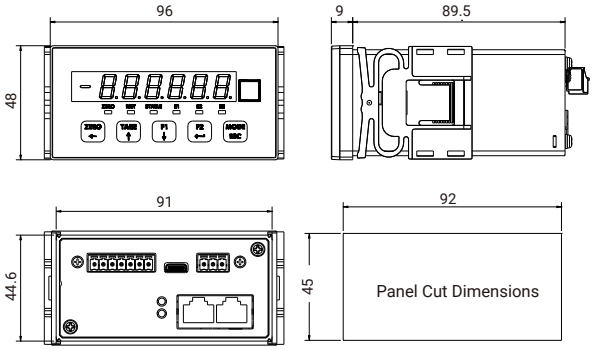
The High-Performance Digital Filter combines high precision and fast response in environments requiring vibration countermeasures for weighing instruments.
It significantly reduces the need for mechanical vibration countermeasures, thereby greatly cutting costs and maintenance expenses.
Additionally, it enables weighing operations under vibration, which was previously very challenging.
Calibration in vibrating environments is also possible.

Weighing Indicators for Ethernet-Based Field Networks

# AD-4411 Series

**(AD-4411-EIP/AD-4411-RPT/AD-4411-ECT)**

Converts signals from strain gauge load cells and connects to Ethernet-based field networks. High-speed sampling (1,200 times/s) and high resolution. Equipped with a High-Performance Digital Filter, enabling stable weighing even under vibration.




Unit=mm

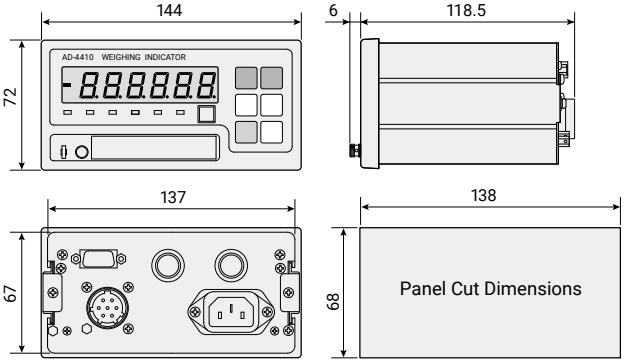
## Specifications

| | |
|---|---|
| Input sensitivity | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | -35 mV to +35 mV |
| Load cell excitation voltage | 5 VDC ±5 %; 90 mA with remote sensing capability<br>Up to six 350 Ω load cells can be connected in parallel |
| Temperature coefficient | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | 0.005 % of F.S. max. |
| Maximum measurement voltage | 35 mV |
| A/D resolution | Approx. 16,000,000 |
| Display resolution | 999,999 d |
| Sampling speed | 1,200 times/s |
| Display | Main display<br>•7-digit LED (green) with character height of 10 mm<br>•Gross / Net display selection |
| Display | Status lamp<br>•LED (red) x 6<br>•ZERO, NET, STABLE, S1, S2, S3<br>Unit<br>•Attach the g / kg / t label as necessary. |
| Standard external I/O | EtherNet/IP (AD-4411-EIP)<br>PROFINET (AD-4411-PRT)<br>EtherCAT (AD-4411-ECT)<br>USB (For maintenance, Type-C, USB 2.0) |
| Power supply | 24 VDC -15 % to +10 % |
| Power consumption | 4.5 W Max. |
| Operating temperature and humidity range | -10 °C to + 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 96 (W) x 48 (H) x 98.5 (D) mm |
| Weight | Approx. 220 g |

Vibration-Resistant Weighing Indicator

# AD-4410

Equipped with a High-Performance Digital Filter, enabling weighing even under vibration. Features include averaging hold function, comparator function, non-linearity correction function, near-zero detection function, zero tracking function, and gravity acceleration correction function.




Unit=mm

## Specifications

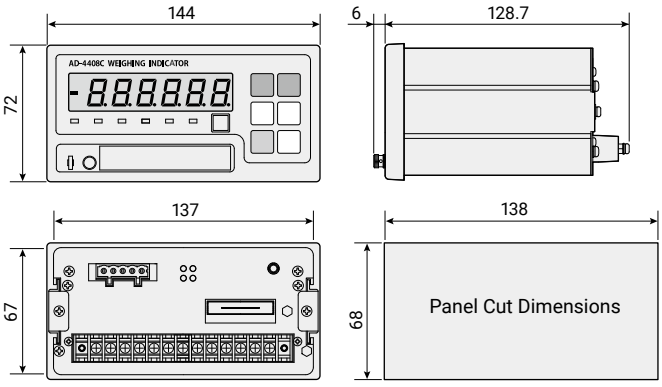
| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 120 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 999,999 d |
| Sampling speed | | 100 times/s |
| Display | Main display | 6-digit LED (green) with character height of 14.6 mm<br>Gross / Net display selection |
| Display | Status lamp | LED (red) x 6<br>ZERO, STABLE, GROSS, NET, HOLD, SELECTED FUNCTION |
| Display | Unit | Attach the g / kg / t label as necessary. |
| Standard external I/O | | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•RS-232C*<br>•Control I/O<br>3 selectable function inputs<br>3 selectable function outputs |
| Power supply | | 100 to 240 VAC (50/60 Hz) |
| Power consumption | | Approx. 10 VA |
| Operating temperature and humidity range | | -10 °C to +40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | | 144 (W) x 72 (H) x 124.5 (D) mm |
| Weight | | Approx. 800 g |
| Options | | AD4410-03* RS-485<br>AD4410-04* RS-232C<br>AD4410-07 Analog output (4-20 mA)<br>AD4410-11 Stand<br>(NOTE) Only one of AD4410-03, 04, and 07 can be selected. Upon installation, current loop cannot be used. |

* Standard RS-232C, AD4410-03 and 04 supports Modbus RTU.

Panel-mount Indicator for CC-link

# AD-4408C

Equipped with CC-Link interface as standard.
Featuring a high-performance digital filter.




Unit=mm

## Specifications

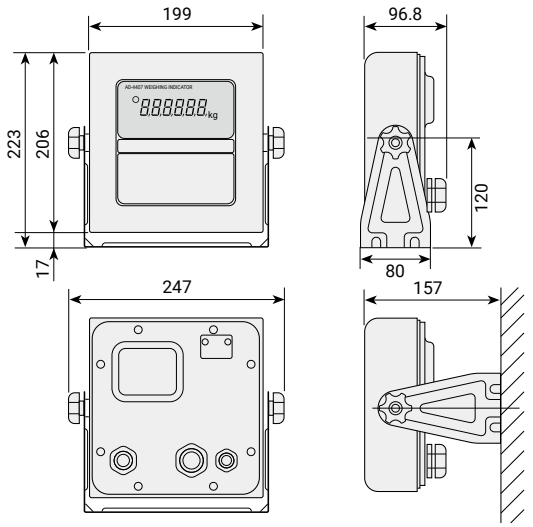
| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 120 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 999,999 d |
| Sampling speed | | 100 times/s |
| Display | Main display | 6-digit LED (green) with character height of 14.6 mm<br>Gross / Net display selection |
| | Status lamp | LED (red) x 6<br>ZERO, STABLE, GROSS, NET, HOLD, SELECTED FUNCTION |

| | |
|---|---|
| Display | Unit: Attach the g / kg / t label |
| Standard external I/O | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•CC-Link |
| Power supply | 100 to 240 VAC (50/60 Hz) |
| Power consumption | Approx. 10 VA |
| Operating temperature and humidity range | -10 °C to +40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 144 (W) x 72 (H) x 134.7 (D) mm |
| Weight | Approx. 800 g |

Waterproof Weighing Indicator

# AD-4407A

Stainless steel (SUS304) body
IP65 compliant, washable with water.




Unit=mm

## Specifications

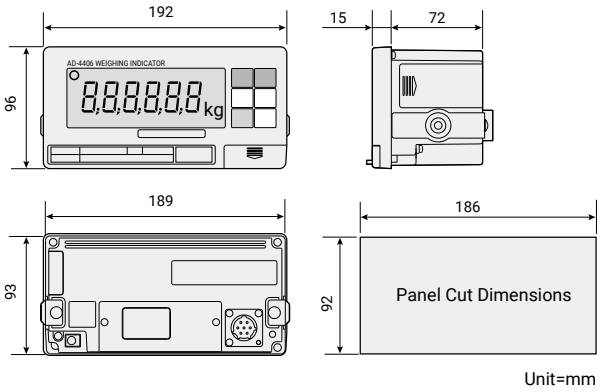
| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 120 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 10,000 d |
| Sampling speed | | 10 times/s |
| Display | Main display | •6-digit VFD (cobalt blue) with character height of 20 mm<br>•Weight value, piece counting, setpoint, cumulative value, tare value, code memory data<br>•Unit: g, kg, t, pcs, % |
| | Judgment Display | HI, OK, LO (red and green LEDs) |
| | Status lamp | Stable, net, zero, preset tare, ready, M+, triangle display marks (3) |

| | |
|---|---|
| Standard external I/O | RS-232C |
| Power supply | 100 / 120 / 230 VAC (to be specified upon order) |
| Power consumption | Approx. 20 VA |
| Operating temperature and humidity range | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 247 (W) x 223 (H) x 96.8 (D) mm |
| Weight | Approx. 2.7 kg |
| Options | AD4407-03: RS-422/485 and Relay output<br>AD4407-05: RS-232C, Relay output and Control input<br>AD4407-07: Analog Output (4-20 mA)<br>AD4407-08: RS-232C, Current loop output, Relay output and Control input<br>(NOTE) Only one of AD4407-03, 05, 07 and 08 can be selected. |

## Static Weighing Indicator with Battery Operation

# AD-4406A

Simple static weighing indicator
Featuring a large, easy-to-read 25 mm LCD display.
Battery-operated. Optional AC adapter power.




Unit=mm

### Specifications

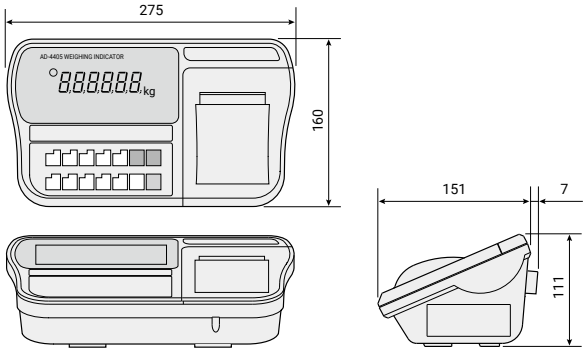
| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 60 mA with remote sensing capability<br>Up to four 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 10,000 d |
| Sampling speed | | 10 times/s |
| Display | Main display | •6-digit LCD with character height of 25 mm<br>•Weight value, setpoint, cumulative value, code memory data<br>•Unit: g, kg, t, % |
| | Judgement display | •HI, OK, LO (Displayed within the main display section) |
| | Status lamp | •Stable, net, zero, ready, M+, Low battery, triangle display marks (3) |

| | |
|---|---|
| Power supply | 6 x C alkaline batteries or optional AC adapter (7 to 10 VDC) |
| Power consumption | Less than 10 VA |
| Battery life (alkaline batteries) | With one load cell (350 Ω): Approx. 170 hours<br>With four load cells (87.5 Ω): Approx. 90 hours |
| Operating temperature and humidity range | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 192 (W) x 96 (H) x 87 (D) mm |
| Weight | Approx. 650 g, excluding batteries |
| Options | AC adapter (Please inquire for model number)<br>AD4406-03: RS-422/485 and Relay output<br>AD4406-04: RS-232C<br>AD4406-05: RS-232C, Relay output and Control input<br>AD4406-07: Analog Output (4-20 mA)<br>AD4406-08: RS-232C, Current loop output, Relay output and Control input<br>AD4406-11 Stand (Can be used with other options)<br>(NOTE) AD4406-03 and 07 come with an AC adapter.<br>Only one of AD4407-03, 04, 05, 07 and 08 can be selected. |

## Weighing Indicator with Optional Built-in Printer

# AD-4405A

Equipped with check-weighing, simple batch-weighing, and counting functions.
Can be used on a tabletop or integrated into control panels using the optional panel mount kit.




Unit=mm

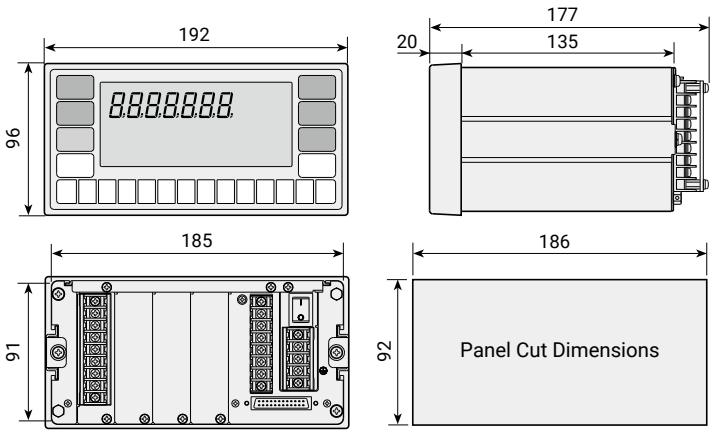
### Specifications

| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 60 mA with remote sensing capability<br>Up to four 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 10,000 d |
| Sampling speed | | 10 times/s |
| Display | Main display | •6-digit VFD (cobalt blue) with character height of 20 mm<br>•Weight value, piece counting, setpoint, cumulative value, tare value, code memory data<br>•Unit: g, kg, t, pcs, % |
| | Judgment Display | HI, OK, LO (red and green LEDs) |
| | Status lamp | Stable, net, zero, preset tare, ready, M+, triangle display marks (3) |

| | |
|---|---|
| Standard external I/O | RS-232C |
| Power supply | 100 / 120 / 230 VAC (to be specified upon order) |
| Power consumption | Approx. 20 VA |
| Operating temperature and humidity range | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 275 (W) x 111 (H) x 158 (D) mm |
| Weight | Approx. 1,550 g (main unit only) |
| Options | AD4405-03: RS-422/485 and Relay output<br>AD4405-05: RS-232C, Relay output and Control input<br>AD-4405-06: Built-in Printer<br>AD4405-07: Analog Output (4-20 mA)<br>AD4405-08: RS-232C, Current loop output, Relay output and Control input<br>AD4405-10: Panel mount kit<br>AD4405-12: Display stand<br>(NOTE) AD4405-03 and 07 come with an AC adapter.<br>Only one of AD4405-03, 05, 07 and 08 can be selected. |
| Consumable goods | AX-PP156-S Printer paper (set of 10 rolls)<br>AX-ERC-05-S Ink ribbon (set of 5) |

# AD-4402 (AC power type) /AD-4402D (24 VDC power type)

Multifunctional compact weighing indicator
Equipped with a large display and comprehensive weighing sequence functions.
Supports a wide range of outputs.




Unit=mm

## Specifications

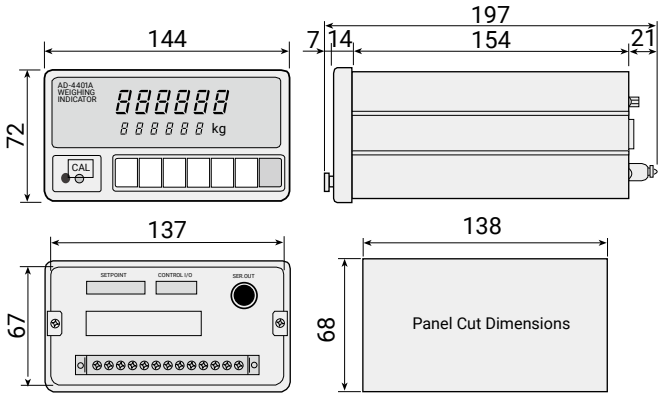
| | | |
|---|---|---|
| Input sensitivity | | 0.3 µV/d or more (d=Minimum division) |
| Zero adjustment range | | 0 mV to +20 mV |
| Load cell excitation voltage | | 10 VDC ±5 %; 230 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.2 µV/°C Typ.<br>Span drift: ±8 ppm/°C Typ. |
| Non-linearity | | 0.01 % of F.S. |
| Maximum measurement voltage | | 32 mV |
| A/D resolution | | Approx. 1,000,000 |
| Display resolution | | 16,000 d |
| Sampling speed | | 100 times/s |
| Display | Main display | •7-digit VFD (cobalt blue) with character height of 18 mm<br>•Gross / Net display selection<br>•Unit: g, kg, t |
| | Sub display | •VFD (cobalt blue) , character height 5 mm, 5x7 dots, 54 figures<br>•Code name, setting values, cumulative value, others<br>•Various messages, bar graph |
| | Status lamp | •VFD (cobalt blue) , 5x7 dots<br>•Triangle display marks (8), Symbols (10) |
| Standard external I/O | | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•RS-485 (supports Modbus RTU)<br>•Control I/O<br>11 inputs (no-voltage contact or open collector)<br>11 outputs (open collector) |

| | |
|---|---|
| Power supply | AD-4402: 100 to 240 VAC (50/60 Hz)<br>AD-4402D: 24 VDC ±20 % |
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -5 °C to +40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 192 (W) x 96 (H) x 177 (D) mm |
| Weight | Approx. 1.8 kg |
| Options | AD4402-01 Parallel BCD output (Open collector)<br>AD4402-02 Relay output<br>AD4402-03 RS-422/485<br>AD4402-04 RS-232C<br>AD4402-05 Parallel I/O<br>AD4402-07 Analog output (4-20 mA)<br>AD4402-20 CC-Link<br>AD4402-25 Indicator stand<br>(NOTE) Up to three options can be installed, excluding AD4402-25. |

Basic Weighing Indicator

# AD-4401A

Equipped with a high-performance digital filter.
Featuring a high-performance A/D converter and versatile functions in a compact body.
Supports functions such as batch weighing and check weighing, making it suitable for applications like hoppers, packers, or checkweighers.




Unit=mm

## Specifications

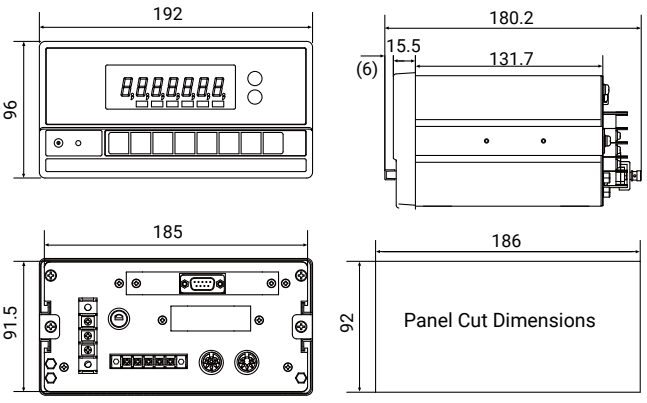
| | | |
|---|---|---|
| Input sensitivity | | 0.3 μV/d or more (d=Minimum division) |
| Zero adjustment range | | 0 mV to +20 mV |
| Load cell excitation voltage | | 10 VDC ±5 %; 230 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.2 μV/°C Typ.<br>Span drift: ±8 ppm/°C Typ. |
| Non-linearity | | 0.01 % of F.S. |
| Maximum measurement voltage | | 32 mV |
| A/D resolution | | Approx. 1,000,000 |
| Display resolution | | 16,000 d |
| Sampling speed | | 100 times/s |
| Display | Main display | •7-digit VFD (cobalt blue) with character height of 13 mm<br>•Gross / Net display selection<br>•Unit: g, kg, t |
| | Sub display | •8-digit VFD (cobalt blue) with character height of 7 mm<br>•Gross, Net, Tare, Final weight, Total weight, Number of accumulations, Weighing sequence error (Select one) |
| | Status lamp | •14 square mark indicators (orange) |
| Standard external I/O | | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•Setpoint input (BCD) for connection to digital switch and AD4401-06<br>•Control I/O<br>6 inputs (no-voltage contact or open collector)<br>8 outputs (open collector) |

| | |
|---|---|
| Power supply | 100 to 240 VAC (50/60 Hz) |
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -10 °C to +40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 144 (W) x 72 (H) x 197 (D) mm |
| Weight | Approx. 1.0 kg |
| Options | AD4401A-01 Parallel BCD output (Open collector)<br>AD4401A-03 RS-422/485 (Supports Modbus RTU)<br>AD4401A-04 RS-232C<br>AD4401-06 Setpoint unit (standalone connection)<br>AD4401A-07 Analog output (4-20 mA)<br>AD4401-10 Stainless steel side panel (Using this panel, the AD-4401A can be mounted in the panel cutout size of the AD-4323)<br>AD4401A-23 Modbus TCP<br>(Note) Only one of AD4401A-01, 03, 04, or 23 can be installed.<br>AD4401A-01, 03, 04, 07, and 23 are exclusive to AD-4401A. (Not compatible with AD-4401) |

Weighing Indicator for Digital Load Cells

# AD-4329A-DLC

Enhanced surge protection
Combined with digital load cell (LCCD20), damage to the indicator and load cell by lightning is reduced.




Unit=mm

## Specifications

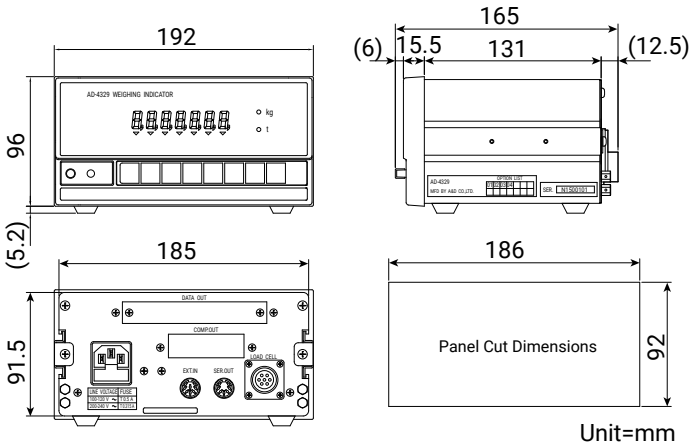
| | | |
|---|---|---|
| Supply voltage for a digital load cell | | 8 VDC ±5 %<br>Up to eight A&D digital load cells can be connected in parallel. |
| Connection interface | | RS-485 (2-wire) |
| Sampling speed | | 10 times/s |
| Display | Main display | •7-digit LED (green) with character height of 13 mm<br>•Gross / Net display selection |
| | Status lamp | •LED (green)<br>•M+, Stable, Gross, Net, Tare, Zero |
| | Units | •LED (green)<br>•kg, t |

| | |
|---|---|
| Standard external I/O | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•RS-232C<br>•Control I/O<br>• 7 inputs (no-voltage contact or open collector) |
| Power supply | 100 / 120 / 200 / 220 - 240 VAC +10% -15% (to be specified upon order) 50 / 60Hz ±5 |
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 192 (W) x 96 (H) x 180.2 (D) mm |
| Weight | Approx. 1.8 kg |
| Options | AD4329A-02 Comparator output (relay output)<br>Accessories for digital load cells: See page 45<br>Digital load cell: See page 36 |

Basic Weighing Indicator

# AD-4329A

Equipped with dual-range/triple-range functionality, ideal for scales with multiple weighing intervals. Versatile enough for use with platform scales, check scales, and simple hopper scales.




Unit=mm

## Specifications

| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 120 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.02 µV/°C Typ. ±0.1 µV/°C max.<br>Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. |
| Non-linearity | | 0.005 % of F.S. |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 10,000 d |
| Sampling speed | | 10 times/s |
| Display | Main display | •7-digit VFD (cobalt blue) with character height of 13 mm<br>•Gross / Net display selection |
| | Status lamp | •VFD (cobalt blue)<br>•M+, Stable, Gross, Net, Tare, Zero |
| | Units | •LED (green)<br>•kg, t |

| | |
|---|---|
| Standard external I/O | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•RS-232C<br>•Control I/O<br>7 inputs (no-voltage contact or open collector) |
| Power supply | 100 / 120 / 200 / 220 - 240 VAC (to be specified upon order) |
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -5 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 192 (W) x 96 (H) x 165 (D) mm |
| Weight | Approx. 1.8 kg |
| Options | AD4329A-01 Parallel BCD output (Open collector)<br>AD4329A-02 Comparator output (relay output)<br>AD4329A-03 RS-422/485<br>AD4329A-07 Analog output (4-20 mA)<br>(NOTE) Only one of AD4329A-01, 03, and 07 can be selected. Installing any of them will disable the standard RS-232C. |

DIN-rail weighing module

# AD-4430 Series
## (AD-4430A/AD-4430C/AD-4430R/AD-4430B)

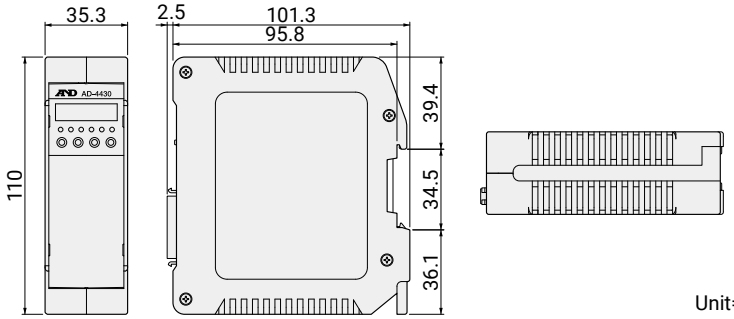
Equipped with a high-performance digital filter.
•DIN rail-mounted type, ideal for integration into control panels.
•High-speed sampling (1,000 times/s), high precision.

AD-4430A
Equipped with 2 analog outputs

AD-4430C
Equipped with CC-Link

AD-4430R
Equipped with RS-485 (Modbus RTU)

AD-4430B
Equipped with BCD output




Unit=mm

## Specifications

| Model | AD-4430A | AD-4430C | AD-4430R | AD-4430B |
|---|---|---|---|---|
| Input sensitivity | 0.15 μ V/d or more (d=Minimum division) | | | |
| Zero adjustment range | -35 mV to +35 mV | | | |
| Load cell excitation voltage | 5 VDC ±5 %; 60 mA with remote sensing capability<br>Up to four 350 Ω load cells can be connected in parallel | | | |
| Temperature coefficient | Zero drift: ±0.02 μV/°C Typ. ±0.1 μV/°C max. Span drift: ±3 ppm/°C Typ. ±15 ppm/°C max. | | | |
| Non-linearity | 0.005 % of F.S | | | |
| Maximum measurement voltage | 35 mV | | | |
| A/D resolution | Approx. 16,000,000 | | | |
| Display resolution | 99,999 d max. (d=Minimum division; recommended to be within 20,000 d) | | | |
| Sampling speed | 1,000 times/s | | | |
| Main display | 5-digit LED (red) with character height of 5.3 mm | | | |
| Status lamp | LED (red) x 6 / GROSS, NET, HOLD, STABLE, ZERO, X (Preset function) | | | |
| Standard external I/O | Analog output (4-20 mA)<br>(2 channels) | CC-Link<br>(Can connect up to 42 devices with one master) | RS-485<br>(Supports Modbus RTU) | Parallel BCD output<br>(Open collector) |
| | Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>Control I/O 6 inputs (no-voltage contact or open collector), 8 outputs (open collector)<br>USB (For maintenance, Micro-B, USB 2.0) | | | - |
| Power supply | 24 VDC Approx. 6 W (Max.) | | | |
| Operating temperature and humidity range | -10 °C to +50 °C<br>Less than 85 % RH, non-condensing | | | |
| External dimensions | 35.3 (W) x 110 (H) x 103.8 (D) mm | | | |
| Weight | Approx. 200 g | | | Approx. 180 g |

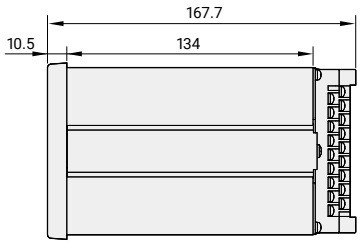
## Options

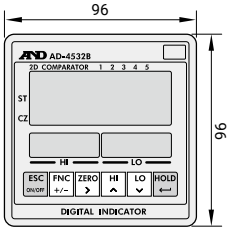
| Model | Description | AD-4430A | AD-4430C | AD-4430R | AD-4430B |
|---|---|---|---|---|---|
| AX-PCX-10S20 | MDR20 terminal block | ✓ | ✓ | ✓ | |
| AX-MDR-20-R | MDR20 right angle connector | ✓ | ✓ | ✓ | |
| AX-KO4889-1M-W | MDR20 cable (double-sided connector type) 1 m | ✓ | ✓ | ✓ | |
| AX-KO4889-1M-S | MDR20 cable (connector to bare wire type) 1 m | ✓ | ✓ | ✓ | |
| AX-TB-AMB2A12BK | USB cable (A to Micro-B) 1.2 m | ✓ | ✓ | ✓ | |
| AX-PCX-10S36 | MDR36 terminal block, Dimensions: Approx. 68 (W) x 30 (H) x 47 (D) mm (incl. protrusions), Rated voltage: 50 V, Rated current: 0.5 A | | | | ✓ |
| AX-MDR-36-R | MDR36 right-angled connector | | | | ✓ |
| AX-KO4283-1.0-W | MDR36 cable (double-sided connector type) 1 m | | | | ✓ |
| AX-KO4283-1.0-S | MDR36 (connector to bare wire type) 1 m | | | | ✓ |

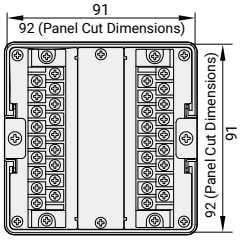
Digital Indicator for Strain Gauge Sensor

# AD-4532B

Converts voltage signals from sensors (strain gauges) at high speed and displays them digitally. Ideal for measuring dynamic phenomena such as load, pressure, displacement, and torque with high-speed sampling (2,000 times/s). Compact size (96 x 96 mm).




Unit=mm

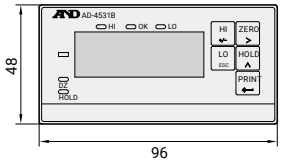
## Specifications

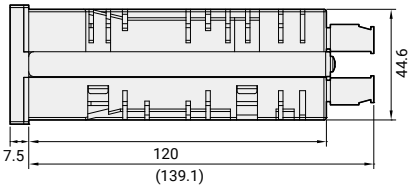
| | | |
|---|---|---|
| Input sensitivity | | 0.6 µV/d or more (d=Minimum division) |
| Zero adjustment range | | Approx. ±50 % of the calibrated span range |
| Load cell excitation voltage | | 5 VDC or 2.5 VDC (selectable via internal settings)<br>5 VDC: Up to four 350 Ω sensors can be connected in parallel<br>2.5 VDC: Up to two 120 Ω sensors or eight 350 Ω sensors can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.5 µV/°C Typ.<br>Span drift: ±30 ppm/°C Typ. |
| Non-linearity | | 0.02 % of F.S. ±1 d |
| Maximum measurement voltage | | 15 mV (when 5 V is applied)<br>7.5 mV (when 2.5 V is applied) |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 999,999 d |
| Sampling speed | | 2,000 times/s |
| Display | Main display | •6-digit LED (orange, green, red) with character height of 14 mm<br>•17 status indicators |
| | Upper/ lower limit indicators | •5-digit LED (green) with character height of 9 mm |
| Display | Polarity display | •LED in 3 colors (orange, green, red) |
| | Judgment display | •LED in 3 colors (orange, green, red)<br>•Status indicators (HI, OK, LO) |
| Standard external I/O | | •Analog amplifier output (±10 V at 3.2 mV/V (fixed sensitivity))<br>•D/A analog voltage output (±10 V)<br>•RS-485 (supports Modbus RTU)<br>•Control I/O<br>• 9 inputs (no-voltage contact or open collector)<br>•Comparator output (relay output) |
| Power supply | | 85 to 250 VAC (50/60 Hz) |
| Power consumption | | Approx. 20 VA |
| Operating temperature and humidity range | | -5 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | | 96 (W) x 96 (H) x 167.7 (D) mm |
| Weight | | Approx. 900 g |
| Options | | AD4532B-01 BCD parallel output<br>AD4532B-04 RS-232C serial interface<br>AD4532B-07 DAV/DAI (analog voltage output/analog current output)<br>AD4532B-08 : Ethernet interface RJ45<br>(NOTE) Only one option can be installed. |

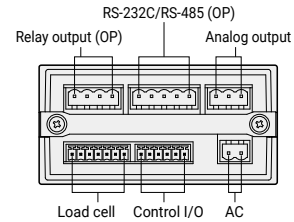
Digital Indicator for Strain Gauge Sensors

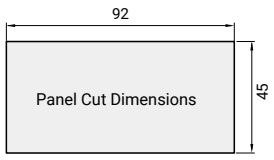
# AD-4531B

Converts voltage signals from sensors (strain gauges) and displays them digitally. Ideal for measuring load, pressure, torque, tension, etc.
Zero correction values can be backed up.
Compact size (96 x 48 mm).




Unit=mm

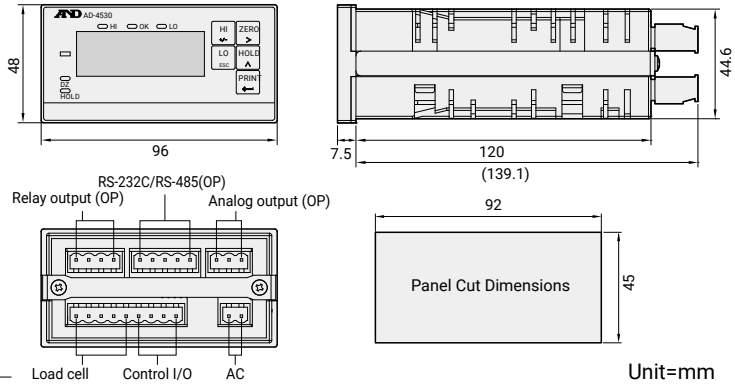
## Specifications

| | | |
|---|---|---|
| Input sensitivity | | 0.15 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 50 mA<br>120 Ω sensor: Up to one sensor can be connected.<br>350 Ω sensor: Up to three sensors can be connected. |
| Temperature coefficient | | Zero drift: ±0.1 µV/°C Typ.<br>Span drift: ±8 ppm/°C Typ. |
| Non-linearity | | 0.005 % of F.S. ±1 d |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 16,000,000 |
| Display resolution | | 999,999 d |
| Sampling speed | | 100 times/s |
| Display | Main display | •6-digit LED (red) with character height of 9.2 mm<br>•Measured or set value |
| | Polarity display | •1 LED (red) |
| | Judgement display | •3 LED (red, green, orange) |
| Display | | Status display<br>•1 red LED, 2 green LEDs, 2 orange LEDs |
| Standard external I/O | | •Control I/O<br>• 2 inputs (no-voltage contact or open collector)<br>• 2 outputs (open collector) |
| Power supply | | 100 to 240 VAC (50/60 Hz) |
| Power consumption | | Approx. 10 VA |
| Operating temperature and humidity range | | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | | 96 (W) x 48 (H) x 146.6 (D) mm |
| Weight | | Approx. 290 g |
| Options | | AD4530-030 RS-485<br>AD4530-040 RS-232C<br>AD4530-007 Analog output (0-10 V, 4-20 mA)<br>AD4530-200 Relay output<br>AD4530-237 RS-485 + Relay output + Analog output (0-10 V, 4-20 mA)<br>AD4530-247 RS-233C + Relay output + Analog output (0-10 V, 4-20 mA)<br>(NOTE) Only one option can be installed. |

## Digital Indicator for Strain Gauge Sensors

# AD-4530

Converts voltage signals from sensors (strain gauges) and displays them digitally. Ideal for measuring load, pressure, torque, tension, etc.
Zero correction values can be backed up.
Compact size (96 x 48 mm).




### Specifications

| | | |
|---|---|---|
| Input sensitivity | | 0.4 µV/d or more (d=Minimum division) |
| Zero adjustment range | | -35 mV to +35 mV |
| Load cell excitation voltage | | 5 VDC ±5 %; 50 mA<br>120 Ω sensor: Up to one sensor can be connected.<br>350 Ω sensor: Up to three sensors can be connected. |
| Temperature coefficient | | Zero drift: ±0.2 µV/°C Typ.<br>Span drift: ±30 ppm/°C Typ. |
| Non-linearity | | 0.01 % of F.S. ±1 d |
| Maximum measurement voltage | | 35 mV |
| A/D resolution | | Approx. 1,000,000 |
| Display resolution | | 9,999 d |
| Sampling speed | | 10 times/s |
| Display | Main display | •4-digit LED (red) with character height of 14 mm<br>•Measured or set value |
| | Polarity display | •1 LED (red) |
| | Judgement display | •3 LED (red, green, orange) |

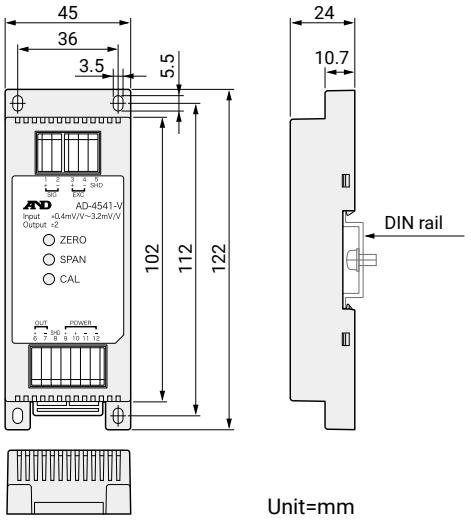
| | |
|---|---|
| Display | Status display<br>•1 red LED, 2 green LEDs, 2 orange LEDs |
| Standard external I/O | •Control I/O<br>• 3 inputs (no-voltage contact or open collector) |
| Power supply | 100 to 240 VAC (50/60 Hz) |
| Power consumption | Approx. 10 VA |
| Operating temperature and humidity range | -10 °C to 40 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 96 (W) x 48 (H) x 146.6 (D) mm |
| Weight | Approx. 290 g |
| Options | AD4530-030 RS-485<br>AD4530-040 RS-232C<br>AD4530-007 Analog output (0-10 V, 4-20 mA)<br>AD4530-200 Relay output<br>AD4530-237 RS-485 + Relay output + Analog output (0-10 V, 4-20 mA)<br>AD4530-247 RS-233C + Relay output + Analog output (0-10 V, 4-20 mA)<br>(NOTE) Only one option can be installed. |

## Analog Signal Conditioner

# AD-4541-V/AD-4541-I

Converts the signals received from a bridge type sensor such as a load cell, pressure sensor, strain gauge, etc., to a voltage output (AD-4541-V / -2 V to +2 V) or a current output (AD-4541-I / 4-20 mA).

AD-4541-V AD-4541-I




### Specifications

| | |
|---|---|
| Zero adjustment range | ±0.5 mV/V |
| Span adjustment range | 0.4 mV/V to 3.2 mV/V |
| Non-linearity | 0.05 % of F.S. typ |
| Load cell excitation | 5 VDC, 60 mA max.<br>120 Ω sensor: Up to one sensor can be connected.<br>350 Ω sensor: Up to four sensors can be connected. |
| Zero temperature coefficient | 2 µV/°C RTI Typ. |
| Span temperature coefficient | 200 ppm/°C Typ. |
| Frequency response | DC to 2 Hz (-3 dB) |
| Response speed | Approx. 190 ms (0 % to 90 %) |
| Input noise | 2 µVp-p RTI typ. |
| Calibration standard | 1 mV/V ±0.2 % typ. |
| Output<br>Voltage output (AD-4541-V)<br>Current output (AD-4541-I) | -2 V to +2 V (Load 2 kΩ or higher)<br>4-20 mA (Load 250 Ω or lower) |

| | |
|---|---|
| Isolation | Input output to power supply |
| Insulation resistance | 500 VDC for 1 min. |
| Power supply | 24 VDC +10% -15% |
| Power consumption | 100 mA max. (Approx. 2.4 W) |
| Operating temperature and humidity range | -5 °C to 50 °C<br>Less than 85 % RH, non-condensing |
| External dimensions | 45 (W) x 122 (H) x 24 (D) mm |
| Weight | Approx. 90 g |
| Terminal | Spring clamp type<br>Wire 0.08 mm2 to 1.5 mm2 (AWG 28-14)<br>Maximum outside diameter 3.4 mm |
| Installation | DIN rail or screw |
| Material (Body) | PBT (V0) |
| Accessories | Flathead screwdriver 1 pc, Instruction manual 1 pc |

# AD-4412-CW/AD-4413-CW (Stainless steel frame type)

A weighing indicator for weight checking with belt checkers and roller checkers.
A checkweigher can be built by simply connecting a load cell or a platform scale.

AD-4412-CW




Unit=mm

AD-4413-CW




Unit=mm

## Specifications

| | |
|---|---|
| Input sensitivity | 0.15 μV/d or more (d=Minimum division) |
| Zero adjustment range | -35 mV to +35 mV |
| Load cell excitation voltage | 5 VDC, 60 mA with remote sensing capability<br>Up to four 350 Ω load cells can be connected in parallel |
| Temperature coefficient | Zero drift: ±0.02 μV/°C Typ.<br>Span drift: ±3 ppm/°C Typ. |
| Non-linearity | 0.005 % of F.S. |
| Maximum measurement voltage | ±35 mV |
| Display resolution | 999,999 d |
| Sampling speed | 4,000 times/s |
| Display | 7 inch LCD with touch panel |
| Standard external I/O | •Control I/O<br>11 inputs (no-voltage contact or open collector)<br>11 outputs (open collector)<br>•Communication interface<br>RS-232C, RS-485, LAN, USB2.0, Wireless LAN*<br>•Power supply of photo eye sensor I/F<br>12 V 250 mA 1 point |
| Power supply | 100 to 240 VAC (50/60 Hz) |

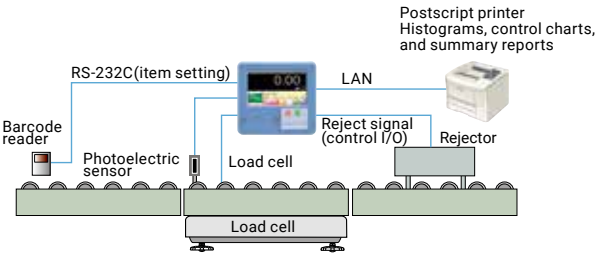
| | |
|---|---|
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -10 °C to +50 °C<br>Less than 85 % RH, non-condensing |
| Dust and water protection | Compliant with IP65 when panel-mounted (Requires AD4412-10) |
| Options | AD4412-02 Relay output 9 points<br>AD4412-05 Parallel I/O DI 16 points, DO16 points<br>AD4412-07 Analog output 1 channel (4-20 mA or 0-10 V). Up to 4 channel outputs possible by adding three AD4412-17.<br>AD4412-17 An option to expand AD4412-07 by up to 3 additional channels.<br>AD4412-10 Panel Mount Kit<br>AD4412-11 Attachment Kit for indicator stand (AD4402-25)<br>AD4402-25 Indicator stand<br>(NOTE) Only two of AD4412-02, 05, 07, and 17 can be selected. |

* Wireless LAN can be used depending on the regulations of your region.
* Wireless LAN reception sensitivity depends on the radio wave environment. Caution is required when performing continuous monitoring.

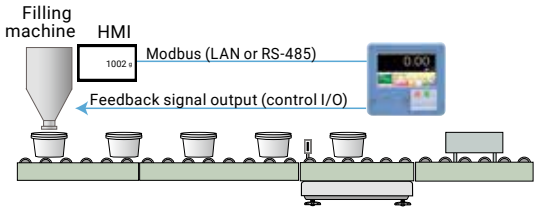
•Feedback control
•Three types of weighing modes: Passing, Stopping, and Static Weighing
•Display various data on smartphones and tablets over wireless LAN during measurement.*
•Save data to a USB Flash Drive and import it to personal computer.

## Applications

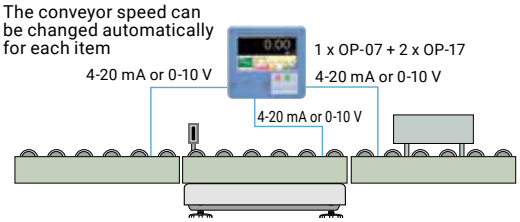
### •Barcode reader



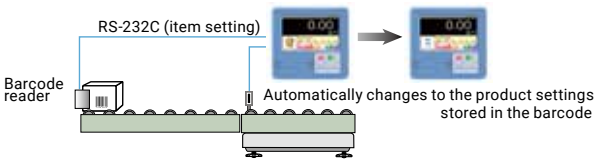

### •Feedback control




### •Conveyor speed control



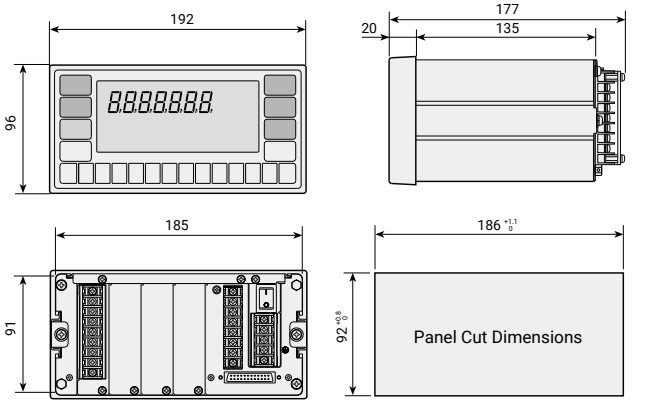

### •Automatic product setting switching system



Check Weighing Indicator

# AD-4404

A weighing indicator for weight checking with belt checkers and roller checkers.
A checkweigher can be built by simply connecting a load cell or a platform scale.




Unit = mm

## Specifications

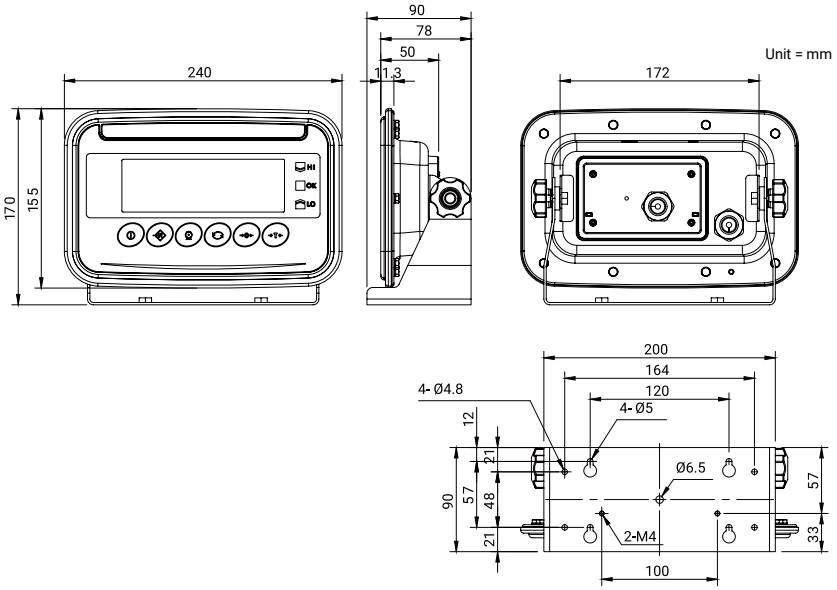
| | | |
|---|---|---|
| Input sensitivity | | 0.3 µV/d or more (d=Minimum division) |
| Zero adjustment range | | 0 mV to +20 mV |
| Load cell excitation voltage | | 10 VDC ±5 %; 230 mA with remote sensing capability<br>Up to eight 350 Ω load cells can be connected in parallel |
| Temperature coefficient | | Zero drift: ±0.2 µV/°C Typ.<br>Span drift: ±8 ppm/°C Typ. |
| Non-linearity | | 0.01 % of F.S. |
| Maximum measurement voltage | | 32 mV |
| A/D resolution | | Approx. 1,000,000 |
| Display resolution | | 16,000 d |
| Sampling speed | | 100 times/s |
| Display | Main display | •7-digit VFD (cobalt blue) with character height of 18 mm<br>•Weight |
| | Sub display | •VFD (cobalt blue) , character height 5 mm, 5 x 7 dots, 54 figures<br>•Code name, comparison data, error, etc. |
| | Status lamp | •Triangle display marks (8), 5 x 7 dots symbols (10) |

| | |
|---|---|
| Standard external I/O | •Standard serial output (20 mA current loop to connect with A&D peripheral devices)<br>•RS-485 (Supports Modbus RTU)<br>•Control I/O<br>11 inputs (no-voltage contact or open collector)<br>11 outputs (open collector) |
| Power supply | 85 to 250 VAC (50/60 Hz) |
| Power consumption | Approx. 30 VA |
| Operating temperature and humidity range | -5 °C to +40 °C<br>Less than 85 % RH, non-condensing |
| Dust and water protection | Compliant with IP65 when panel-mounted (using the standard accessory gasket) |
| External dimensions | 192 (W) x 96 (H) x 177 (D) mm |
| Weight | Approx. 1.8 kg |
| Options | AD4402-01 Parallel BCD output (Open collector)<br>AD4402-02 Relay output<br>AD4402-03 RS-422/485<br>AD4402-04 RS-232C<br>AD4402-05 Parallel I/O<br>AD4402-07 Analog output (4-20 mA)<br>AD4402-25 Indicator stand<br>(NOTE) Up to three options can be installed, excluding AD4402-25 |

Waterproof Static Weighing Indicator

# FG-D-CWP (USB power model) / FG-D-ACWP (AC power model) NEW

Affordable stainless steel indicator ideal for building various types of waterproof scales.
Large LCD display (character height 30 mm) with white backlight.




## Specifications

| Model | FG-D-CWP | FG-D-ACWP |
|---|---|---|
| Input sensitivity | 0.1 µV/d or more (d=Minimum division) | |
| Zero adjustment range | -16 mV to +16 mV | |
| Load cell excitation voltage | 5 VDC ±10 %; 230 mA with remote sensing capability<br>Up to four 350 Ω load cells can be connected in parallel | |
| Temperature coefficient | Zero drift: ±0.02 µV/˚C typ., ±0.1 µV/˚C max.<br>Span drift: ±3 ppm/˚C typ., ±15 ppm/˚C max. | |
| Non-linearity | ±0.01 % of F.S. | |
| Display resolution | 100,000 d | |
| Display | 7 segment LCD with white backlight (character height: 30 mm) | |
| Sampling speed | Approx. 10 times/s | |
| Operating temperature and humidity range | -10 °C to +40 °C<br>Less than 85 % RH, non-condensing | |
| Dust and water protection | Complies with IP67 | |
| Power supply | AC adapter, mobile battery, or USB Type-A port<br>USB Cable Length: Approx. 3 m (USB cable is also used for communication.) | AC mains (100 to 240 V, 50/60 Hz, 0.1 A Max)<br>AC cable length: Approx. 3 m |
| External dimensions | 240 (W) x 76 (D) x 155 (H) mm | |
| Weight | Approx. 1.6 kg (incl. stand) | |
| Options | FG-27CWP Bluetooth® communication interface<br>AD-8541-PC Bluetooth® dongle for PC connection<br>AD-8931-JA Bluetooth® external display<br>AX-USB-CLAMP USB cable clamp | |

# Indicator peripherals

## Universal Printer AD-8118C

The AD-8118C is a universal printer designed for connection with indicators, scales and electronic balances.

| | |
|---|---|
| Print type | Dot matrix impact printer |
| Character specifications | 5 x 7 dots, 1.7 (W) x 2.6 (H) mm |
| Printing speed | Approx. 1.7 lines/s |
| Number of characters | 24 characters/line |
| Data communication | RS-232C, Current loop |
| Power supply | 85 VAC to 264 VAC, 50/60 Hz |
| Power consumption | Approx. 17 VA with AD-8118C-02 installed |
| Operating temperature and humidity range | 0 °C to +40 °C<br>Less than 80 % RH, non-condensing |
| External dimensions | 192 (W) x 185 (D) x 96 (H) mm |
| Weight | 2.4 kg with AD-8118C-02 installed |

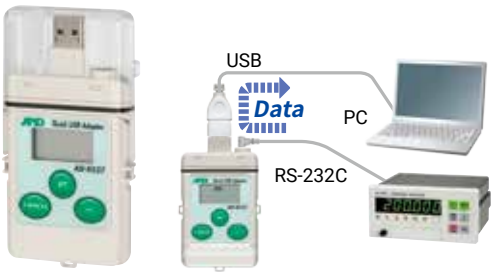
## Weighing Data Logger AD-1688

The AD-1688 can store data from a weighing instrument through the RS-232C interface, even without a computer.


| | |
|---|---|
| Compatible models | A&D weighing instruments with an RS-232C interface (Some models are not supported) |
| Memory size | Approx. 5000 data sets in the standard format (15 characters in 1 data set). |
| Data import to PC | Via USB port (No special software required) |
| Power supply | Not required<br>Power is supplied from a weighing instrument or a PC. |
| Accessories | RS-232C communication cables (3 types), USB extension cable |
| External dimensions | 55 (W) x 103 (D) x 16.5 (H) mm |
| Weight | Approx. 60 g |

## Quick USB Adapter AD-8527

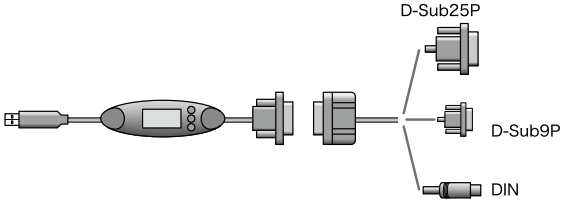
The AD-8527 transfers the RS-232C output of A&D weighing instruments to a PC via USB in real time.
This allows a PC without a COM port to receive data.




| | |
|---|---|
| Compatible models | A&D weighing instruments with an RS-232C interface (Some models are not supported) |
| Power supply | Not required<br>Power is supplied from a weighing instrument or a PC. |
| Accessories | RS-232C communication cables (3 types), USB extension cable |
| External dimensions | 55 (W) x 103 (D) x 16.5 (H) mm |
| Weight | Approx. 60 g |

## USB Converter and Cable Set
### AX-USB-25P / AX-USB-9P / AX-USB-DIN

The USB converter and cable set allows weighing data to be transferred from an RS-232C port on balance or scale to a USB port on a PC.




| Model | AX-USB-25P | AX-USB-9P | AX-USB-DIN |
|---|---|---|---|
| Compatible models | A&D weighing instruments with an RS-232C interface (Some models are not supported) | | |
| Indicator interface | D-Sub 25P female | D-Sub 9P male | DIN 7P |
| Cable | D-Sub 25P-D-Sub 9P (Approx. 203 cm) | D-Sub 9P-D-Sub 9P (Approx. 179 cm) | DIN 7P-D-Sub 9P (Approx. 205 cm) |
| Converter | D-Sub 9P-USB (Approx. 82 cm) | D-Sub 9P-USB (Approx. 82 cm) | D-Sub 9P-USB (Approx. 82 cm) |
| PC interface | USB | USB | USB |

## RS-232C / Ethernet (TCP/IP) Converter AD-8526

Converts the RS-232C output of A&D weighing instruments to Ethernet (TCP/IP).
Enables management of weighing data over a network.

| | |
|---|---|
| Compatible models | A&D weighing instruments with an RS-232C interface (Some models are not supported) |
| Power consumption | Approx. 11 VA (supplied to the AC adapter) |
| Accessories | AC adapter, RS-232C cable (2 m) |
| External dimensions | 113 (W) x 60 (D) x 38 (H) mm |
| Weight | Approx. 250 g |

# Indicator peripherals

## RS-232C to Bluetooth® Converter AD-8541-SCALE

Enables A&D weighing instruments with an RS-232C (D-Sub 9-pin) interface to wirelessly communicate with a Bluetooth-equipped device such as a smartphone/tablet or PC.
(For bi-directional communication with a PC, the separately-sold dongle AD-8541-PC is required.)

| | |
|---|---|
| Compatible models | A&D weighing instruments with an RS-232C interface (Some models are not supported) |
| Communication distance | 10 m max. (line of sight) |
| Dedicated power supply | Not required (For some models, a separately-sold AC adapter and USB cable are required) |
| Operating environment | -10 to 40°C , 85% RH or less (no condensing) |
| Dimensions | Approx. 35 (W) x 65 (D) x 17 (H) mm |
| Weight | Approx. 18 g |
| Communication method | Bluetooth 5.0 (Bluetooth Low Energy) |

## Bluetooth® Dongle for PC AD-8541-PC

Allows a PC (with communication software such as WinCT installed) to wirelessly receive data from and send commands to a Bluetooth-enabled A&D weighing instruments through its USB port.

| | |
|---|---|
| Compatible models | Windows XP/Vista/7/8.1/10/11, 32/64 bit |
| Communication distance | 10 m max. (line of sight) |
| Power supply | From USB port |
| Operating environment | -10 to 40°C , 85% RH or less (no condensing) |
| Dimensions | Approx. 24 (W) x 12 (H) x 74 (D) mm |
| Weight | Approx. 15 g |
| Communication method | Bluetooth 5.0 (Bluetooth Low Energy) |
| Serial communication parameters | Baud rate: 2400 bps<br>Bit length / parity: 7 bit / even<br>Stop bit: 1 bit |

# High-precision weighing modules for production line AD-4212 Series

## AD-4212A

### Fast stabilization of 0.8 seconds for 1 mg readability

- Slim separate weighing sensor unit (80 mm width) for compact setups
- Equipped with 3-level comparator contact output as standard
- Data memory function for up to 200 weighing data or 50 calibration results, etc.
- IP54 splash-proof construction

| Model | AD-4212A-100 | AD-4212A-200 | AD-4212A-600 | AD-4212A-1000 |
|---|---|---|---|---|
| Capacity | 110 g | 210 g | 610 g | 1100 g |
| Readability | 0.1 mg | 1 mg | 1 mg | 1 mg |
| Stabilization time (typical when set to FAST) | 0 to 30 g: 1.1 sec<br>30 to 110 g: 1.3 sec | 0 to 30 g: 0.8 sec<br>30 to 210 g: 1.0 sec | 0 to 30 g: 0.9 sec<br>30 to 610 g: 1.1 sec | 0 to 30 g: 0.9 sec<br>30 to 1100 g: 1.1 sec |
| Standard external I/O | RS-232C (Bi-directional, 600-19200 bps) | | | |
| | Comparator contact output (3-level with buzzer) | | | |
| | External contact input (RE-ZERO, PRINT) | | | |
| Optional external I/O | BCD output/External contact input, 5-level comparator contact output, Ethernet (TCP/IP) interface | | | |
| Weighing pan size | 50 x 50 mm | | 70 x 70 mm | |
| External dimensions (sensor) | 80 (W) x 230 (D) x 90 (H) mm | | 80 (W) x 230 (D) x 92.5 (H) mm | |
| External dimensions (display) | 237 (W) x 150 (D) x 155 (H) mm (incl. standard stand), Panel mountable (192 x 96 mm) | | | |

## AD-4212B

### Fast stabilization of 4.0 seconds for 0.01 mg readability

- Slim separate weighing sensor unit (80 mm width) for compact setups
- Equipped with 5-level comparator contact output as standard
- Data memory function for up to 200 weighing data or 50 calibration results, etc.
- IP54 splash-proof construction

| Model | AD-4212B-101 | AD-4212B-102 | AD-4212B-201 | AD-4212B-301 |
|---|---|---|---|---|
| Capacity | 31 g / 110 g | 110 g | 210 g | 310 g |
| Readability | 0.01 mg / 0.1 mg | 0.01 mg | 0.1 mg | |
| Stabilization time (typical when set to FAST) | 4.0 sec / 2.5 sec | 4.0 sec | 2.5 sec | |
| Standard external I/O | RS-232C (Bi-directional, 600-19200 bps) | | | |
| | Comparator contact output (3-level or 5-level, with buzzer) | | | |
| | External contact input (RE-ZERO, PRINT) | | | |
| Optional external I/O | BCD output/External contact input, Ethernet (TCP/IP) interface | | | |
| Weighing pan size | Ø34 mm | | 50 x 50 mm | |
| External dimensions (sensor) | 80 (W) x 230 (D) x 90 (H) mm | | | |
| External dimensions (display) | 237 (W) x 150 (D) x 155 (H) mm (incl. standard stand), Panel mountable (192 x 96 mm) | | | |

## AD-4212C

### Electromagnetic digital load cells with fast stabilization of 0.5 seconds

- Slim size (59 mm width) for installation in narrow spaces
- Direct digital data output to a panel computer, PLC, or PC via RS-232C
- High-speed data transmission of up to 50 times/s
- In addition to the standard RS-232C, it can be combined with an optional controller to enable CC-Link and BCD output.
- IP65 dust and waterproof construction


| Model | AD-4212C-301 | AD-4212C-300 | AD-4212C-600 | AD-4212C-3100 | AD-4212C-3000 | AD-4212C-6000 |
|---|---|---|---|---|---|---|
| Capacity | 51 g / 320 g* | 320 g | 620 g | 510 g / 3200 g* | 3200 g | 6200 g |
| Readability | 0.0001 g / 0.001 g | 0.001 g | 0.001 g | 0.001 g / 0.01 g | 0.01 g | 0.01 g |
| Stabilization time (typical when set to FAST) | d=0.0001 g: 1.3 s<br>d=0.001 g: 1.0 s | 0 to 30 g: 0.5 s<br>30 to 320 g: 1.0 s | 0 to 30 g: 0.5 s<br>30 to 620 g: 1.0 s | d=0.001 g: 1.3 s<br>d=0.01 g: 1.0 s | 0 to 300 g: 0.5 s<br>300 to 3200 g: 1.0 s | 0 to 300 g: 0.5 s<br>300 to 6200 g: 1.0 s |
| Standard external I/O | RS-232C (Bi-directional, 2400 to 19200 bps) | | | | | |
| Weighing pan size | 50 x 50 mm | | | | | |
| External dimensions | 59 (W) x 231 (D) x 91 (H) mm | | | | | |

* Smart range function: The display will switch to the standard range automatically when the value exceeds 51 g or 510 g but return to the precision range by performing RE-ZERO (tare).

# High-precision weighing modules for production line AD-4212 Series

## AD-4212D

### Electromagnetic digital load cells with minimum weighing value from 1 µg

•Direct digital data output to a panel computer, PLC, or PC via standard RS-232C
•Internal sensitivity adjustment weight to ensure accuracy with one key press
•Equipped with a small breeze break
•IP65 dust and waterproof construction

| Model | AD-4212D-33S | AD-4212D-32S | AD-4212D-302S | AD-4212D-301S |
|---|---|---|---|---|
| Capacity | 32 g | 5.1 g / 32 g* | 320 g | 320 g |
| Readability | 0.001 mg | 0.001 mg / 0.01 mg | 0.01 mg | 0.1 mg |
| Stabilization time (typical when set to FAST) | Approx. 7 sec | | | Approx. 3 sec |
| Standard external I/O | RS-232C (Bi-directional, 2400 to 19200 bps) | | | |
| Weighing pan size | Ø34 mm | | Ø50 mm | |
| External dimensions | 167.5 (W) x 298 (D) x 170 (H) mm (w/ small breeze break) | | | |
| | 167.5 (W) x 298 (D) x 90 (H) mm (w/o small breeze break) | | | |

* Smart range function: Automatically switches between the precision and standard ranges. Changes back to full precision range when the RE-ZERO (tare) operation is performed.

## AD-4212L

### Fast stabilization with high-speed sampling 1000 times/s

•Slim size (30 mm width) for installation in narrow spaces
•Powerful vibration cancelling filter
•Strong overload protection
•DIN rail mounting type display unit

| Model | AD-4212L-R50 | AD-4212L-R100 |
|---|---|---|
| Capacity | 51 g | 110 g |
| Readability | 1 mg | |
| Stabilization time (typical) | 0 to 5 g 0.3 s<br>5 to 51 g 1.0 s | 0 to 5 g 0.3 s<br>5 to 110 g 1.3 s |
| Standard external I/O | RS-485 (Modbus-RTU) / control I/O (6 input / 8 output points) | |
| Weighing pan size | Ø20.5 mm | |
| External dimensions (sensor) | 30 (W) x 165 (D) x 56 (H) mm / 400 g (excl. cable) | |
| External dimensions (display) | 35 (W) x 101 (D) x110 (H) mm / 200 g | |
| Cable | Ø4.5 mm / 10 m / Approx. 350 g | |
| Power supply | 24 VDC +10 % -15 % | |
| Deflection amount | 0.21 mm | |
| Natural frequency | 65 Hz | 95 Hz |

## AD-4212F

### Electromagnetic digital load cells with high capacity

•Slim size (80 mm width) for installation in narrow spaces
•Fast stabilization of approx. 0.5 seconds (typical) for up to 300 g excluding tare
•Direct digital data output to a panel computer, PLC, or PC via RS-232C
•IP65 dust and waterproof construction

| Model | AD-4212L-R50 | AD-4212L-R100 | AD-4212F-22001 |
|---|---|---|---|
| Capacity | 510 g / 6200 g* | 10200 g | 22000 g |
| Readability | 0.001 g / 0.01 g | 0.01 g | 0.1 g |
| Stabilization time (typical when set to FAST) | d=0.001 g: 1.3 s<br>d=0.01 g: 1.0 s | 0 to 300 g: 0.5 s<br>300 to 10200 g: 1.0 s | 0 to 300 g: 0.5 s<br>300 to 22000 g: 1.0 s |
| Standard external I/O | RS-232C / RS-485 (Bi-directional, 600 to 115200 bps ) | | |
| Weighing pan size | 70 x 70 mm | | |
| External dimensions | 80 (W) x 320 (D) x 128 (H) mm | | |

* Smart range function: Automatically switches between the precision and standard ranges. Changes back to full precision range when the RE-ZERO (tare) operation is performed.

## List of models with OIML R60 certification

(as of April 2025)

| Model | Class |
|---|---|
| LCC11-T010-K | C4 |
| LCC11-T020-K | C4 |
| LCC11-T030-K | C4 |
| LCC11-T010N-K | C4 |
| LCC11-T020N-K | C4 |
| LCC11-T030N-K | C4 |
| LCM13-K100 | C3 |
| LCM13-K200 | C3 |
| LCM13-K300 | C3 |
| LCM13-K500 | C3 |
| LCM13-T001 | C3 |
| LCM13-T1.5 | C3 |
| LCM13-T002 | C3 |
| LCM13-T003 | C3 |
| LCM13-T005 | C3 |
| LCCD20-T010-K | C4 |
| LCCD20-T020-K | C4 |
| LCCD20-T030-K | C4 |
| LCCD20-T010N-K | C4 |
| LCCD20-T020N-K | C4 |
| LCCD20-T030N-K | C4 |
| LCCD20-T010-K6 | C6 |
| LCCD20-T020-K6 | C6 |
| LCCD20-T030-K6 | C6 |
| LCCD20-T010N-K6 | C6 |
| LCCD20-T020N-K6 | C6 |
| LCCD20-T030N-K6 | C6 |
| LCC20-T030-K | C4 |
| LCC20-T030N-K | C4 |

Please contact us for detailed specifications or information on products not listed above.

## List of models with OIML R76 certification

(as of April 2025)

| Model | Class III | Class IIII |
|---|---|---|
| AD-4406A | ✓ | ✓ |
| AD4329A-DLC | ✓ | ✓ |
| AD-4329A | ✓ | ✓ |
| AD-4401A | ✓ | ✓ |

Please contact us for detailed specifications or information on products not listed above.

## List of UL/CSA recognized models

(as of April 2025)

| Model |
|---|
| AD-4411-EIP |
| AD-4411-PRT |
| AD-4411-ECT |

Please contact us for detailed specifications or information on products not listed above.

A&D Company, Ltd.

## Discover Precision

A&D Company, Ltd. (JAPAN)
URL: aandd.jp

A&D Engineering, Inc. (USA)
URL: andonline.com

A&D Australasia Pty Ltd. (Australia)
URL: andaustralasia.com.au

A&D Instruments Ltd. (United Kingdom)
URL: andprecision.com

A&D Korea Ltd. (South Korea)
URL: andk.co.kr

A&D Rus Co., Ltd. (Russia)
URL: and-rus.ru

A&D Instruments India (P) Ltd. (India)
URL: aanddindia.in

A&D Scientech Taiwan Ltd. (Taiwan)
URL: aandd.com.tw

A&D Instruments Thailand Ltd. (Thailand)
URL: thai.andprecision.com

A&D Technology Trading (Shanghai) Co., Ltd. (China)
URL: aanddtech.cn