LC1205-USB series

USB S-type Load Cell for Force Measurement

A&D Company, Ltd.

1WMPD4004977

LC1205-USB series website https://link.aandd.jp/1205-usb_EN

1. OUTLINE

- The LC1205-USB series are S-shaped tension/compression load cells.
- LC1205-USB series load cells are calibrated using the physical force value, and connected to a computer via USB cable for measurement.
- Recommended for simplified measurement in experiments and evaluations.
- Combine the LC1205 series (bridge output) with our weighing indicators when precision measurement is required for built-in use inside systems, etc.

2. CAUTIONS

- When using tension and there is risk of overloading the cell, take appropriate safety measures to prevent drops, etc.
- When using compression, mount the load cell on a secure surface that is rigid and flat.
- When using compression, clean the surface to ensure there is no residual dust or dirt before mounting the load cell.
- Avoid applying unbalanced load, lateral load, torsion or bending moment to the load cell when mounting or applying load to the load cell.
- When mounting the load cell in a location that is exposed to direct sunlight or radiant heat, use heat insulating materials or take other measures to prevent temperature gradient.
- To prevent malfunction, do not disassemble the conversion box.

3. NAMES
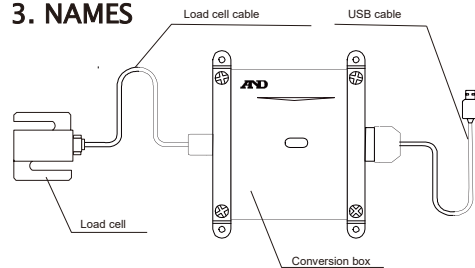
4. MEASUREMENT SOFTWARE

The measurement data can be confirmed on the computer when using the measurement software "WinCT-DLC". The "WinCT-DLC" can download from the LC1205-USB series website.

5. SPECIFICATIONS

Model	LC1205-K020-USB	LC1205-K050-USB	LC1205-K100-USB	LC1205-K200-USB
Item CD	LC1205K020-U	LC1205K050-U	LC1205K100-U	LC1205K200-U
Rated capacity	200 N (20.39 kg)	500 N (50.99 kg)	1 kN (102.0 kg)	2 kN (203.9 kg)
Rated output	200.000 ±1.000 [N]	500.000 ±2.500 [N]	1000.00 ±5.00 [N]	2000.00 ±10.00 [N]
Safe overload	200 % of R.C.			
Ultimate overload	250% of R.C.		200% of R.C.	
Load cell cable	φ 6mm length 3m			
Load cell material	Aluminum		Steel	
Weight	0.7 kg		0.8 kg	0.9 kg

Model	LC1205-K500-USB	LC1205-T001A-USB	LC1205-T002-USB	LC1205-T005-USB
Item CD	LC1205K500-U	LC1205T001A-U	LC1205T002-U	LC1205T005-U
Rated capacity	5 kN (509.9 kg)	10 kN (1.020 t)	20 kN (2.039 t)	50 kN (5.099 t)
Rated output	5000.00 ±25.00 [N]	10000.0 ±50.0 [N]	20000.0 ±100.0 [N]	50.0000 ±0.2500 [kN]
Safe overload	200 % of R.C.			
Ultimate overload	200 % of R.C.			
Load cell cable	φ 6mm length 3m	φ 6mm length 5m		
Load cell material	Steel			
Weight	0.9 kg	1.7 kg		2.4 kg

COMMON SPECIFICATIONS

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Output polarity	＋ : Tension,－ : Compression
Combined error	0.02 % of R.O.
Power supply voltage	DC 5V (USB bus power)
Average current consumption #1	60 mA or less
Zero balance	±2 % of R.O.
Temperature effect on zero	0.08 % of R.O./10 °C
Temperature effect on span	0.05 % of Load/10 °C
Compensated temperature range	−10 to 60 °C
USB cable	φ 4 mm length 1.2 m A type connector
Conversion box material	Polycarbonate
Dust proof / water proof	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 value1.0 Hz)
Communication standard	Conformed to USB Ver.2.0 Full Speed
Communication settings — Baud rate	38400 bps
Communication settings — Data bits	8 bits
Communication settings — Parity	Even
Communication settings — Stop bit	1 bit
Communication settings — Terminator	CR LF
Communication settings — Code	ASCII

#1 : Reference value.

6. PROCEDURE OF INSTALLATION

6.1. INSTALLING THE LOAD CELL

1. When using tension, mount the load cell using a rod end bearing or the like so that a vertical load can be applied. Accuracy will be adversely affected if lateral load, torsion, etc. are applied.
2. When using compression, finish the surface roughness of the load cell mounting surface to Ra25 or less, and apply a vertical load to the load cell. Uneven load, lateral load, bending moment, etc. will adversely affect accuracy.
3. Fix the load cell cable so that the weight of the cable does not affect the accuracy.

4. Construct the grounding connection so that load cell and computer is the same voltage potential. If the load cell is charged static electricity, it may cause of malfunction.

6.2. EXAMPLE OF INSTALLATION WITH OPTIONS
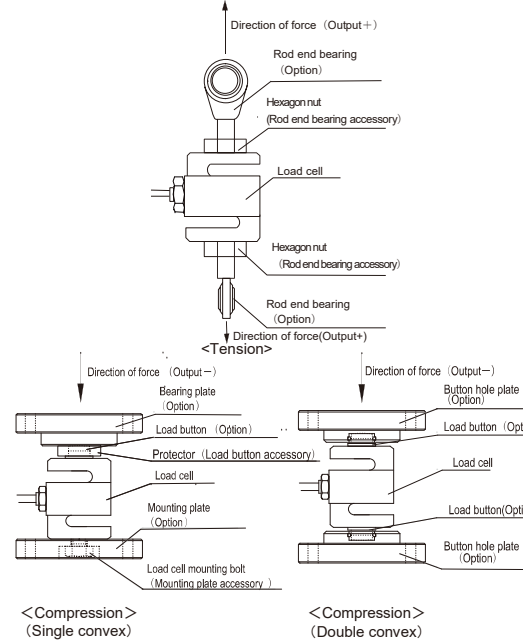
Compatible options

Load cell #2	K020 K050 K100	K200 K500	T001A	T002	T005
Rod end bearing	LCB-A6	LCB-A12	LCB-A18	LCB-18	LCB-24-5T
Load button	LCLB-1	LCLB-2	LCLB-4	LCLB-4	LCLB-5
Bearing plate	LCBP-1	LCBP-1	LCBP-2	LCBP-2	LCBP-2
Mounting plate	LCMP-1	LCMP-2	LCMP-4	LCMP-4	LCMP-5
Button hole plate	LCBHP-1	LCBHP-1	LCBHP-2	LCBHP-2	LCBHP-3

#2 "***" in LC1205-***-USB of model name is described.

7. PROCEDURE OF CONNECTING COMPUTER

1. Connect the USB cable to the computer.
2. Select the device manager at control panel in the computer.
3. Select "Ports (COM & LPT)".
4. Confirm the displayed COM Port number. x of "USB Serial Port (COM x)" is COM Port number. If COM Port numbers are not confirmed and are connected, identification of COM Port cannot recognize. Therefore, confirm COM Port number each time when connecting it. Additionally, when installation of driver software fails and COM Port number isn't displayed, refer to website of "Future Technology Devices International Limited" and retry installation of driver software. Refer to website of the LC1205-USB series for "USB load cell computer connection communication manual" and "USB connection manual".
5. Select the "Port Settings" tab in property of USB Serial Port (COM x), then select "Advanced".
6. In the "BM options", set the "Latency Timer (msec)" under 10 (recommended value is 3). If it is not to set, a communication delay may result.

8. COMMAND LIST

In this document, only major commands are described. Concerning of others, refer to "USB load cell computer connection communication manual" from the LC1205-USB series website.

Items	Transmission command of host side	Response command of load cell side
Floating point type measurement value reading	RFMV <CR><LF>	RFMVXXXXXXXX <CR><LF>
Floating point type measurement value sequential reading	RCFM <CR><LF>	RCFMXXXXXXXX <CR><LF>
Fixed point type measurement value reading	RLMV <CR><LF>	US,YYYYYYYYYZZZ <CR><LF>
Fixed point type measurement value sequential reading	RCLM <CR><LF>	US,YYYYYYYYYZZZ <CR><LF>
Stop sequential reading	STOP <CR><LF>	STOP <CR><LF>

XXXXXXXX : The floating point type measurement value, ZZZ : Unit
YYYYYYYYY : The fixed point type measurement value

Response of command error

Items	Response command of load cell side
Format error	? <CR><LF>
Setting value error	V <CR><LF>

9. LED DISPLAY

Orange .... TX   (Sending)
Yellow .... RX   (Receiving)
Blue .... Power (Power supply)

10. MAINTENENCE

1. Remove all dirt and dust from the load cell, and always use it in a clean environment.
2. When cleaning, use an air blower.

11. DIMENSIONS

<LOAD CELL>
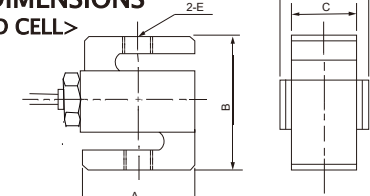
Model	A	B	C	D	E
LC1205-K020-USB	50	64	19	23	M6×1 depth 11
LC1205-K050-USB	50	64	19	23	M6×1 depth 11
LC1205-K100-USB	50	64	12	16	M6×1 depth 110
LC1205-K200-USB	50	64	19	23	M12×1.75 depth 10
LC1205-K500-USB	50	64	19	23	M12×1.75 depth 10
LC1205-T001A-USB	75	100	24	28	M18×1.5 depth 25
LC1205-T002-USB	75	100	24	28	M18×1.5 depth 22.5
LC1205-T005-USB	75	100	36	40	M24×2 depth 21

<CONVERSION BOX>