Minebea

1. General

This instrument is the digital conversion module for strain gage applied transducers which adopt the DIN mounting type and in suitable with built-in control panel.

This instrument is equipped with RS-422/485 interface as standard equipment.

2. Specifications

2-1. Specifications for analog

- Bridge power supply　　DC5 V±0.25 V within 60 mA, with sensing
- Applicable transducers　Up to 4 pieces of strain gage applied transducers(350 ohm) can be connectable.
- Input sensitivity　　0.15 µV/d or more (d = minimum scale)

  * 0.2 µV/d (In case of applying CE conformity standard.)
- Input range　　−3.1 mV/V ~ 3.1 mV/V
- Zero adjustment range　±2.5 mV/V
- Non-Linearity　　0.01 %F.S.
- Temperature coefficient

  Zero point　　±0.2 µV/℃

  (When the calibration is made at 0.15 µV/d or more of the input sensitivity.)

  Sensitivity　　±0.001 5 %F.S./℃

  (When the calibration is made at 0.15 µV/d or more of the input sensitivity.)
- Input noise　　±0.2 µVp-p or less

  (At the default setting of analog filter, digital filter and stabilization filter.)
- Anlog filter　　Approx. 4.0 Hz (2 .0Hz ~ 10.0 Hz, it can be swiched at intervals of 0.1 Hz.)
- A/D sampling　　500 times/s (Changeable to 250 times/s, 100 times/s, 50 times/s.)
- A/D internal resolution　24 bits

2-2. Specification for digital

- Main display (Load display)

  Display range　　−99 999 ~ 99 999

  Display increment　1 (Changeacle to 2, 5, 10, 20, 50)

  Display unit　　FSTN liquid crystal (With umber color LED back light.)

  Over display　　"−OL" display at minus over, "OL" display at plus over

  AD value over display　"−OVF" display at minus over, "OVF" display at plus over
- Condision display　ZERO, SPAN, mV/V, STABLE, TARE, GROSS, NET, CZ, LOCK, HOLD, ERROR
- Display rate　　4 times/s
- Judgement display　OUT 1, 2, 3, 4, 5
- Decimal point display　No display, 10^1, 10^2, 10^3 and 10^4 changeable.
- Unit display　　No display, g, kg, t , N, kN, lb, Pa, kPa or MPa changeable.

Minebea

SPECIFICATIONS

2-3.Specifications for setting

- Internal setting value

EEPROM	Calibration data, the data that relates to calibration and comparator set value
SRAM	Zero set data, Zero tracking data, and Tare data. (The backup function is not provided in SRAM. You can change the stored place of Zero set data, Zero tracking data and Tare data to EEPROM by the function setting.)

2-4.Function of front panel key switch

FUNC
Shifts to Function mode.
/Shifts to calibration mode of a simple calibration.
(By pushing 2 seconds or more)

CAL-Z /◄
Shifts to ZERO calibration mode of a simple calibration.
(By pushing 2 seconds or more)
/Shifts to calibration lock mode of a simple calibration.
(By pushing 2 seconds or more CAL-Z /◄ and CAL-S/▲)
/ Carry up the setting value.

CAL-S/▲
Shifts to SPAN calibration mode of a simple calibration.
(By pushing 2 seconds or more)
/ Set value increment.

F / ENTER
Register the setting value. Execute function set in F/ENTER key.
Selectable from None, Hold, Zero set, Zero clear, Tare weight cancellation,
Tare weight clear, changeover of gross value/net value.
Shift to the setting mode of comparator, Check the RS-422/485 address.

2-5.External control function

- External control input signals

    3 functions in the following can be arbitrarily selected.

    - OFF

    - Zero set

    - Zero clear

    - Tare

    - Tare clear

    - Changeover the display for net value or gross value.

    - Hold(Pulse)

    - Error release
    * Above are pulse input, and effective only once at the pulse width of 50 ms or more.

    - Hold(Level)

    - Display of NET (With ON, the net weight is displayed when the Gross weight is shown.)

    - Batch key lock
    * Above are level input, and effective during the input of short for 50 ms or more.

- Equivalent circuit of the external control input section
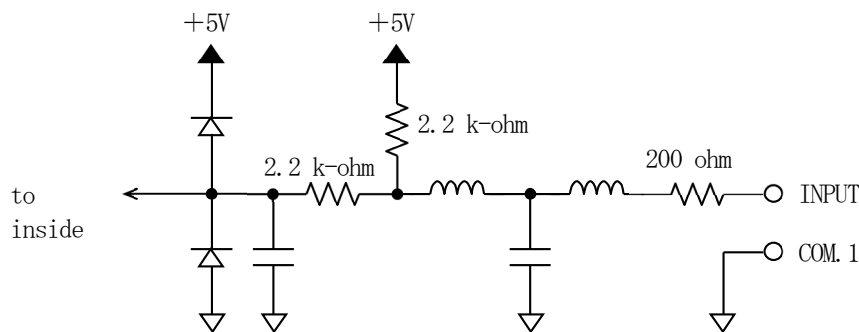
SPECIFICATIONS

- External control output signals

  5 functions in the following can be arbitrarily selected.

  - OFF
  - Stable
  - During canceling the Tare weight
  - Display of gross
  - Display of net
  - Center zero
  - During the hold
  - Error, Abnormal weight
  - Z-Band
  - OK (S0),
  - Big flow (S1)
  - Middle flow (S2)
  - Small flow (S3)
  - Over (S4)
  - Under
  - Full
  - RUN

- Equivalent circuit of external control output
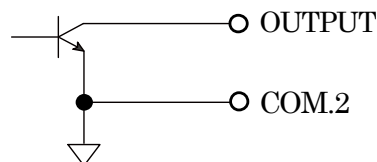
Rated open collector V_{CE} = DC35 Vmax, I_C = DC50 mAmax

* COM.1 and COM.2 are connected in the instrument.

2-6.Comparator function

- Set value $-99\,999 \sim 99\,999$
- Numbers of setting   5 points of S0, S1, S2, S3 and S4
- Set value of hysteresis data width $0 \sim 99$ digits
- Direction of hysteresis   Whichever changeable to "On delay" or "Off delay"
- Conversion times of comparator   Changeable to synchronous with the A/D sampling times or display late.

Minebea

2-7.RS-422/485 interface

- Specifications

Baud rate	: Selectable from 1 200, 2 400, 4 800, 9 600, 19 200 or 38 400 bps.
Data bit length	: Selectable from 7 bit or 8 bit.
Parity bit	: Selectable from none,even or odd.
Stop bit	: Selectable from 1 bit or 2 bit.
Terminator	: Selectable from CR+LF or CR
Communication method	: Half duplex
Synchronizing method	: Start - Stop synchronized method
Address	: Select one from 0 to 31.
Communication data	: ASC II code (Command mode and Stream mode)
	: Binary code (Modbus mode)
Cable length	: Approx.1 km
Numbers of connectable units	: 32units at the maximum (RS-422 : 10 units)

*When th Stream mode is selected in the data transmission mode ,the number that can be conenected with CSD-892-76 becomes only one unit.

Termination	: Built-in (Selects the presence by the connection of terminal board.)
Data transmission mode	: Selectable from Command,Stream or Modbus.
Changeover of RS-422 and RS-485	: Set by function
	Equipped with the LED for I/O monitor

- Terminal configuration of RS-422/485

SDA	Differential output (+)
SDB	Differential output (-)
RDA	Differential input (+)
RDB	Differential input (-)
TRM	Termination resistance
S.G.	Signal ground

* Suitable plug for connector : MSTB 2. 5/6-ST-5.08 (by PHOENIX CONTACT)

- Function
  (1) Reading out the load.
  (2) Reading out the condition.
  (3) Changing the condition.
  (4) Reading out the set value of conparator.
  (5) Changing the set value of conparator.
  (6) Reading out the set value of various functions.
  (7) Changing the set value of various functions.
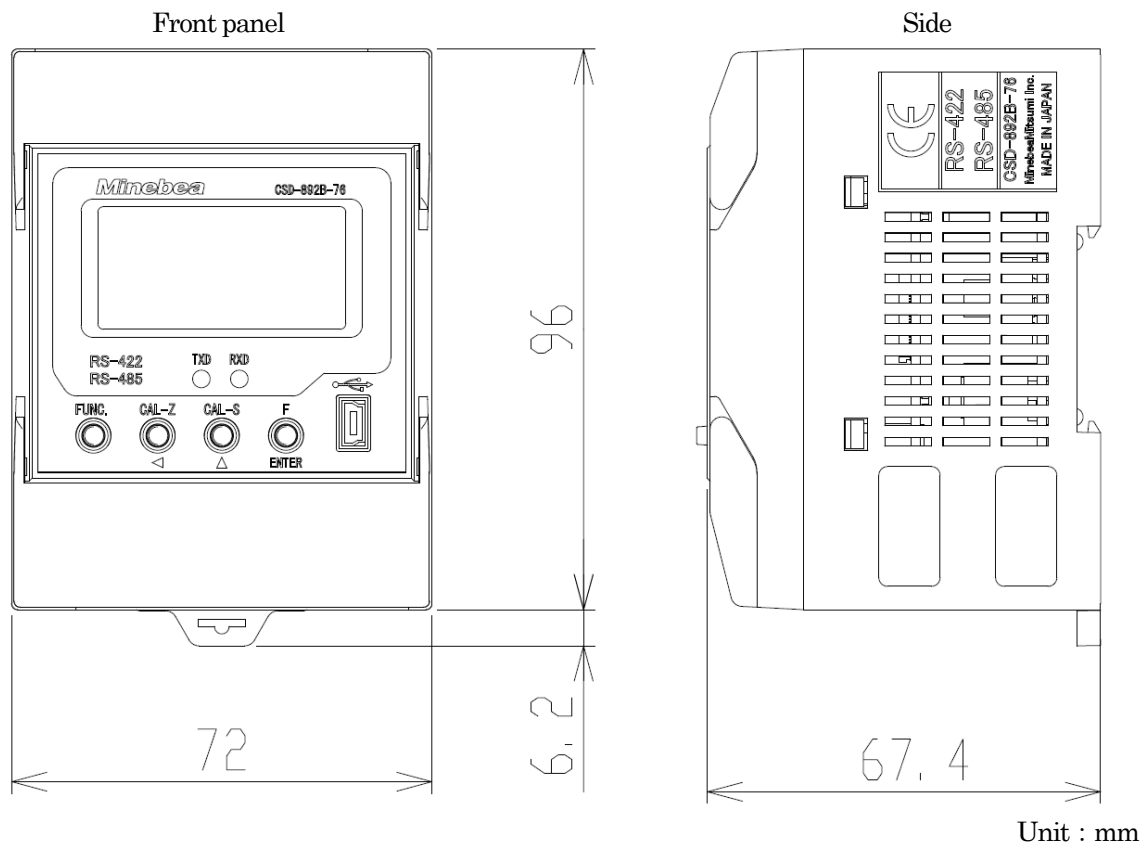 (8) Load calibration
  (9) Communication error code

2-8.USB interface

- Standard   Comfirms to USB2.0 (Can also use with the standard of USB1.1)
- Connector   mini USB B type (female)

* Please use the USB interface after installing a specical driver in the host side.

* The USB interface, cannot be used if you are using the RS-422/485 interface.

2-9.Various functions

- Zero tracking   Stabilize the fluctuation of the zero point in a constant condition.
- Digital filter   Data is stabilized through the calculation process with the software in CPU.
- Stabilized filter   The digital filter is reinforced and stabilized only when the width of the change of the load is constant.
- Digital linearize   Executes the compensation of the non-linearity by the max. 3 points or less.

3. General specifications

- Operating temperature/humidity range
  - Temperature $-10\ ℃ \sim 50\ ℃$
  - Humidity   85 %RH or less (Non condensing.)
- Stored temperatre range $-20\ ℃ \sim 60\ ℃$
- Power supply
  - Power supply voltage   DC24 V   (Permisible variable range DC20.4 V $\sim$ DC27.6 V)
  - Power consumption   Approx. 2.4W (at DC24 V)
- Outline dimensions   72 mm(W)$\times$ 96 mm(H)$\times$ 67.4 mm(D)
                                              (excludes protruding parts)
- Weight   Approx.260 g

4. Specifications at the time of shipment

- Bridge power supply   DC5 V
- Span adjustment   10 000 display at the input of 0.5 mV/V
- The minimum scale   1

5. Accessories

- Start guide (in Japanese)   1 piece
- Start guide (in English)   1 piece
- Short bar   2 pieces
- RS-422/485 connector   1 piece

6. Options

6-1.EzCTS （Ez Communication Tool Software)

The PC that installs EzCTS and connects with CSD-892B-76, can read and write the parameter set with CSD-892B-76.

* For details, EzCTS please refer to specifications.

7. Outline dimensions

Front panel

Side

Unit : mm

* It corresponds to the rail of 35 mm of DIN standard width.

8. Conformity standard

- This instrument has suited the following standard.

    EN61326-1 : 2013
    "Electrical equipment for measurement, control and laboratory use －EMC requiremenrs"
    "Immunity test requirements for equipment intended for use in industrial locations"

    JIS B 7611-2 : 2015
    "Non-automatic weighing instruments - Metrological and technical requirements and test - Part2: Measuring instruments used in transaction or certification."
    According to Annex C (Environmental Level H), (Environmental Level L).

    RoHS compliant

    * CE conformity standard is not effective in case of using USB interface.
    Please observe the following conditions strictly when this instrument suits the below,
    it may not conform to the above standard when these are neglected.

8-1.Wiring

① About cable
- Use the shielded cable other than the power cable.

② Shield processing
- Please connect the shield cable of load cell with E terminal in upper terminal block.
- Please connect the shield of RS-422/485 cable with the F.G. terminal on the lower teminal block.
- Please make sure to do the shield prosessing on the cable for RS-422/485 interface and the external control I/O.

③ Grounding
- The ground shall apply the individual ground by using the F.G. terminal in lower terminal block.

④ Surge countereasure parts
- When applying to EN61326-1:2013, connect an external surge absorber (Model : RSP-DC24Q-4 Made by Okaya Electric Industries Co., Ltd.) or equivalent products (breakdown voltage of 33V or more) in parallel to the terminal block (F.G., 24V, 0V) .
- When applying to JIS B 7611-2:2015 level H, connect an external surge absorber (Model : RSP-DC24Q-4 Made by Okaya Electric Industries Co., Ltd.) in parallel to the terminal block (F.G., 24V, 0V) .
    When applying to JIS B 7611-2:2015 level L, no surge absorbers are required.

* Specifications and Outline dimensions and so on which have printed may subject to change for the
    purpose of improvement without notice.