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.

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.

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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 setting mode. (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/ ▲ at the same time.) / 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	Selects from Non, Hold, Zero set, Zero clear, Tare, Tare clear, Changeover the display for net value or gross value, Shift to the setting mode of comparator. Check to CC-Link station number /Registration of set value

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
  - Batch start
  - Discharge start
  - Emergency stop
  - Manual free fall compensation
  - Forced batch finish
  - Forced discharge finish

  ＊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 (Level：Effective in turning on at the measurement screen.)
  - General input 1
  - General Input 2
  - General input 3

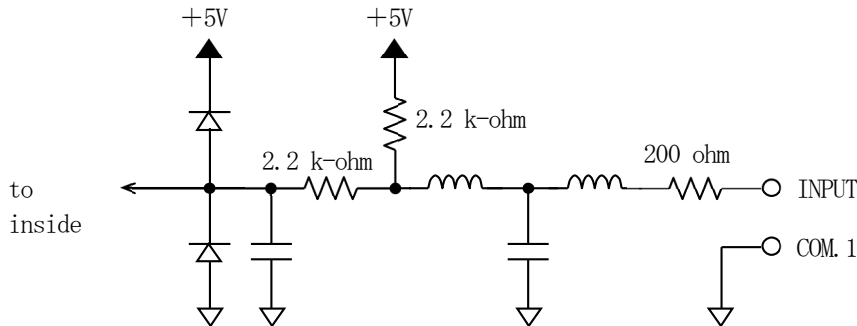 ＊Above are level input, and effective during the input of short for 50 ms or more.

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- Equivalent circuit of the external control input section

- External control output signals

  5 functions in the following can be arbitrarily selected.

  - OFF
  - RUN
  - 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
  - General output 1
  - General output2
  - General output3
  - Measurement sequence error
  - During measurement
  - Batch finish
  - Discharge (Open the discharge gate),
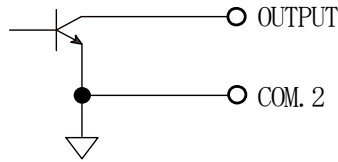 - Discharge finish (Discharge gate)

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SPECIFICATIONS

- 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 $0 \sim 99$ digit
- 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.

2‐7．CC-Link interface

- Version of CC-Link   : Ver.1.10
    Occupied stations Nos. : Selectable from 1, 2 or 4 stations.
- Specifications
    Baud rate   : Selectable from 156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps or 10 Mbps.
    Communication method : Poling method
    Synchronous method   : Bit synchronous method
    Transmission route   : RS-485 bus
    Transmission format   : HDLC comforming
    Remote station   : 01 ~ 64 when one station is occupied.
                                        01 ~ 63 when two stations are occupied.
                                        01 ~ 61 when four stations are occupied.
    Connectable units   : 64 units at maximum with occupied one station.
                                        32 units at maximum with occupied two stations.
                                        16 units at maximum with occupied four stations.
    Connectable cable   : Shielded twist pair special cable for "CC-Link"
    Termination   : Attached with resistance externally.
    Status LED   : Display the communication status by four (4) LEDs of "RUN" ,"ERR", "SD" and "RD".

- Connector configuration of CC-Link

Pin No.	Signal name	Signal name
1	DA	Signal cable at DA side
2	DB	Signal cable at DB side
3	DG	Signal cable ground
4	SLD	Shield
5	FG	Frame ground

* Suitable plug for CC-Link connector plug : MSTB 2, 5/5-ST-5, 08 ABGY AU (made by Phoenix Contact.)

* "SLD" and "FG" are connected in the instrument.

- 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
  * CC-Link is abbreviation of Control & Communication Link.

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.

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 ℃ ~ 50 ℃
  Humidity   85 %RH or less (Non condensing.)
- Stored temperatre range -20 ℃ ~ 60 ℃
- Power supply
  Power supply voltage   DC24 V   (Permisible variable range DC20.4 V ~ DC27.6 V)
  Power consumption   Approx. 2.4W (at DC24 V)
- Outline dimensions   72 mm(W)× 96 mm(H)× 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
- CC-Link connector   1 piece
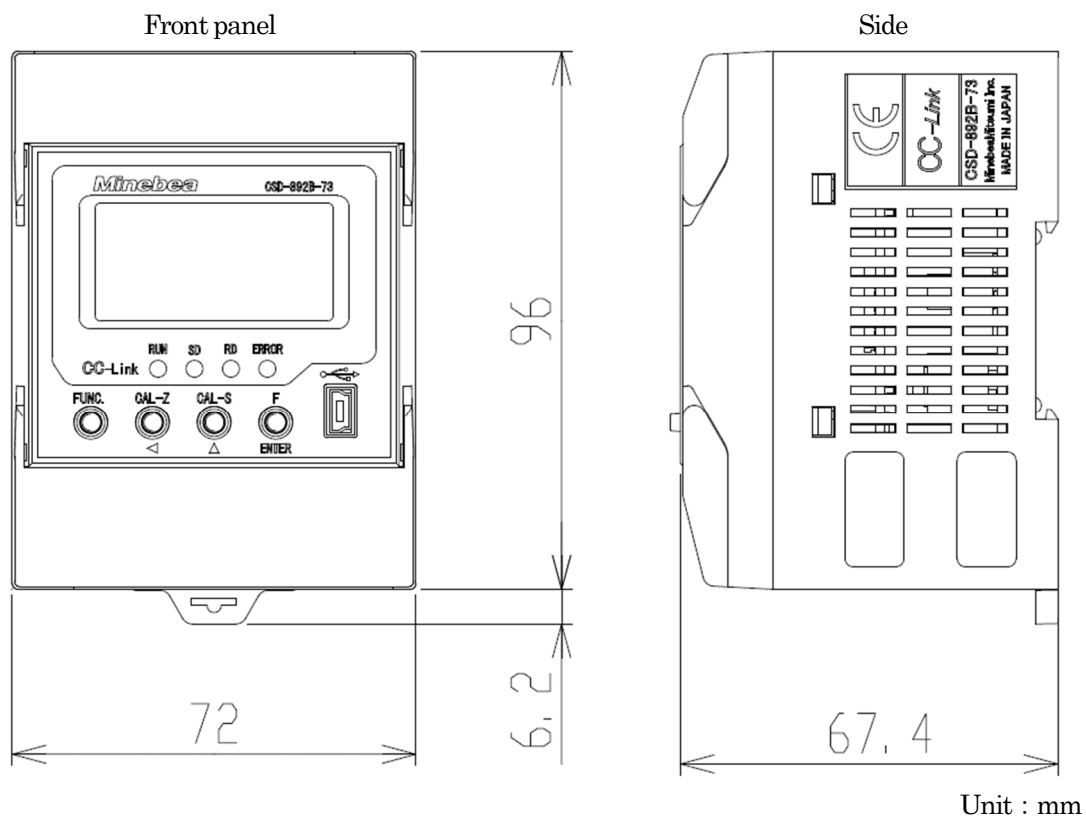- Short bar, between A-F and C-G   2 pieces

6．Options

6‐1．EzCTS （Ez Communication Tool Software）

The PC that installs EzCTS and connects with CSD-892B-73, can read and write the parameter set with CSD-892B-73.

* 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．This instrument has suit 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 cable only for CC-Link interface with SLD terminal in the connector for CC-Link interface.
- Please make sure to do the shield prosessing on the cable only for CC-Link 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.