

## Specifications

Digital Conversion Module

CSD-892-76

Spec. No. EN382892-76-C

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### 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  $\pm$  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  $\mu$  V/d or more (d = minimum scale)  
\* 0.2  $\mu$  V/d (In case of applying CE conformity standard.)
- Input range  $-3.1$  mV/V  $\sim$  3.1 mV/V
- Zero adjustment range  $\pm 2.5$  mV/V
- Non-Linearity 0.01 %F.S.
- Temperature coefficient  
Zero point  $\pm 0.2$   $\mu$  V/ $^{\circ}$ C  
(When the calibration is made at 0.15  $\mu$  V/d or more of the input sensitivity.)  
Sensitivity  $\pm 0.0015$  %F.S./ $^{\circ}$ C  
(When the calibration is made at 0.15  $\mu$  V/d or more of the input sensitivity.)
- Input noise  $\pm 0.2$   $\mu$  Vp-p or less  
(At the default setting of analog filter, digital filter and stabilization filter.)
- Analog filter Approx. 4Hz (Changeable to 2Hz, 6Hz, 8Hz, 10Hz)
- 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  $-99\ 999 \sim 99\ 999$
  - Display increment 1 (Changeable to 2, 5, 10, 20, 50)
  - Display unit FSTN liquid crystal (With amber 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
- Condition 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 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.

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### 2-5. External control function

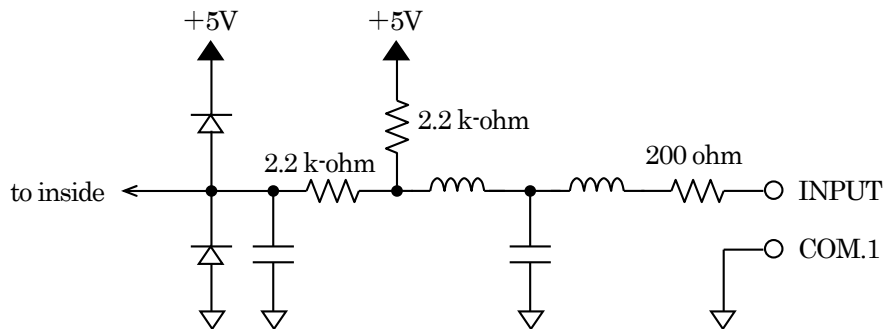
- External control input signals

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

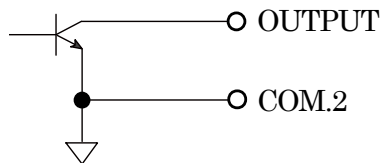
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- External control output signals
  - 5 functions in the following can be arbitrarily selected.
    - OFF
    - Stable
    - During canceling the Tare weight
    - Display of gross
    - Display of net
    - Center zero
    - During the hold
    - 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  $V_{CE} = DC35 V_{max}$ ,  $I_C = DC50 mA_{max}$

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

### 2-6. Comparator function

- |                                      |  |
|--------------------------------------|--|
| • Set value                          | —99 999 ~ 99 999   |
| • Numbers of setting                 | 5 points of S0, S1, S2, S3 and S4                                      |
| • Set value of hysteresis data width | 0 ~ 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. |

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### 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 : 32 units at the maximum (RS-422 : 10 units)

\*When the Stream mode is selected in the data transmission mode, the number that can be connected 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 comparator.
- (5) Changing the set value of comparator.
- (6) Reading out the set value of various functions.
- (7) Changing the set value of various functions.
- (8) Load calibration
- (9) Communication error code

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### 2-8. USB interface

- Standard Comforms 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 special 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  $-10\text{ }^{\circ}\text{C} \sim 50\text{ }^{\circ}\text{C}$
  - Humidity 85 %RH or less (Non condensing.)
- Stored temperature range  $-20\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$
- Power supply
  - Power supply voltage DC24 V (Permissible 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
- 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-892-76, can read and write the parameter set with CSD-892-76.

\* For details, EzCTS please refer to specifications.

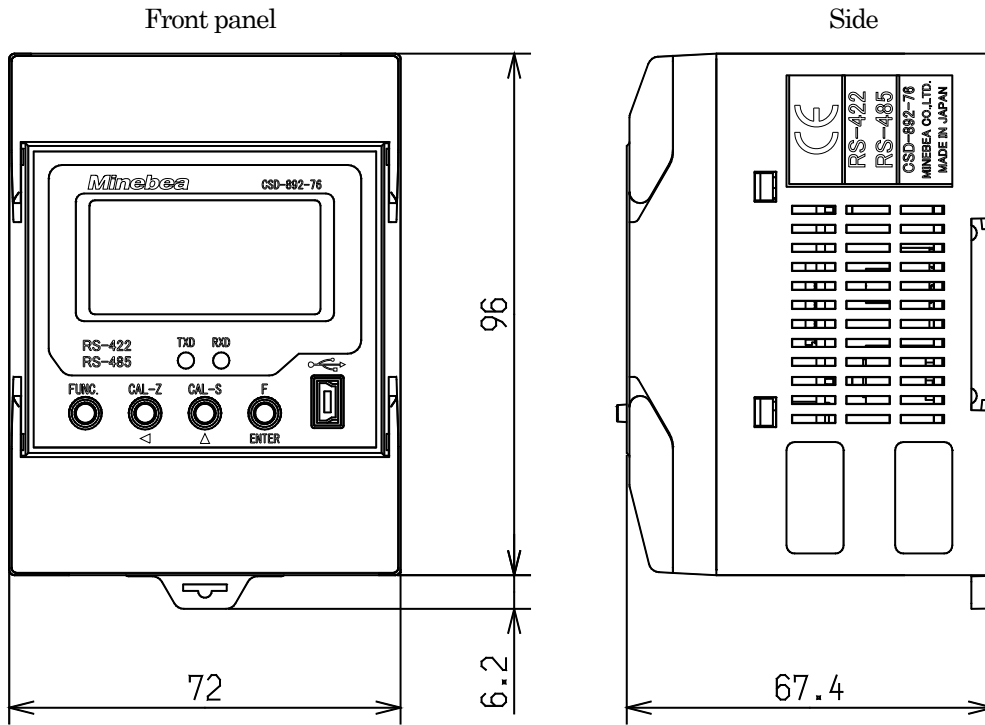
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### 7. Outline dimensions



Unit : mm

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

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### 8. Conformity standard

- This instrument has suited the following standard.

EN61326-1 : 2013

“Electrical equipment for measurement, control and laboratory use – EMC requirements”

“Immunity test requirements for equipment intended for use in industrial locations”

EN50581 : 2012

“Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances” (RoHS Directive)

\* 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. Location of installation

- Please set up in the shielded case or control panel where EMC solution is given in case of conforming.

#### 8-2. Wiring

##### ① About cable

- Use the shielded cable other than the power cable.
- Please attach a ferrite core to the shielded cable of load cell.  
Model E04SR401938 by SEIWA ELECTRIC or equivalent.

##### ② Shield processing

- Please connect the shielded cable of load cell with E terminal in upper terminal block.
- Please connect the shield of RS-422/RS-485 cable with the F.G. terminal in lower terminal block.
- Please make sure to do the shield processing on the cable for RS-422/RS-485 and the external control I/O by conduit piping including the control panel.

#### 8-3. Power supply

- The power supply by which DC24V is supplied to the instrument must use the conformed product of CE standard, and set the instrument up in the same storage case.
- Please make sure to do the shield processing on the cable for AC power cable by conduit piping including the control panel.

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