

## SPECIFICATIONS

Built-in P.C. Board Type  
Digital Indicator

### 1. General

This instrument is the built-in P.C. Board type digital indicator with BCD output, and it is suitable for the application inside of control panel, such as batcher scale, platform scale and so on.

### 2. Specifications

#### 2-1. Specifications for analog

- Bridge power supply DC10 V $\pm$ 0.5 V within 120 mA (DC2.5 V is changeable) with remote sensing applied.
- Applicable transducer Up to 4 pieces of strain gage applied transducers(350  $\Omega$ ) can be connectable.
- Input range F.S. setting can be made with the input range from 0.2 mV/V to 3.1 mV/V (Bridge power supply is at DC10 V)
- Zero adjustment range  $-0.1$  mV/V to 2.4 mV/V
- Non-linearity 0.01 %F.S.  
(F.S. setting with the input range from 0.3 mV/V to 3.1 mV/V.)
- Temperature coefficient  
Zero point  $\pm 0.4 \mu\text{V}/^\circ\text{C}$   
(Input conversion, at F.S. setting with the input range from 0.3 mV/V to 3.1 mV/V.)  
Sensitivity  $\pm 0.003 \text{ %F.S.}/^\circ\text{C}$   
(At F.S. setting with the input range from 0.3 mV/V to 3.1 mV/V.)
- Input noise  $\pm 0.3 \mu\text{V}_{\text{p-p}}$  or less  
(at the default setting for digital filter and stabilized filter)
- A/D sampling 100 times/s
- CHECK Approx.0.3 mV/V  
(Setting can be provided at the intervals of 0.1 mV/V with the range from 0.1 mV/V to 1.5 mV/V.)

#### 2-2. Specifications for digital

- Load display Load display or setting display  
Display range  $-1\ 000$  to  $11\ 000$  ( $\times 2, \times 5$  and  $\times 10$  can be available.)  
Display Red 7 segments LED, character's height 8 mm, 5 digit  
Over display “-OL” display when minus over and “OL” display when plus over.
- Status display RUN, A/Z, LOCK, HOLD, CHECK
- Display rate 4 times/s (20 times/s or 50 times/s changeable)
- Decimal point display No display,  $10^1, 10^2, 10^3$  or  $10^4$  changeable

#### 2-3. Key switch function

- A/Z / ◀ Tare weight cancellation/Setting value carry
- A/Z OFF / ▲ Tare weight cancellation clear/Setting value increment
- ZERO Zero set
- FUNC. Changeover of Function mode
- CHECK ON/OFF of check value
- ENTER Enter key

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### 2-4. Output signal for open collector

- RUN ON during Measurement mode of the instrument.
- ERROR ON during various kinds of errors are occurred.  
V<sub>CE</sub>=DC30 V, I<sub>C</sub>=DC30 mA MAX

### 2-5. BCD output

- Specifications  
Output

- BCD 5 digits Parallel output with polarity (POL)  
(Output ON with minus and outputs OFF with plus.)
- P.C. (Print command) ON during a certain period after conversion of BCD output is completed.
- ERROR ON at the time of various kinds of errors are occurred
- OVR (over)

Above are open collector outputs V<sub>CE</sub>=DC30 V, I<sub>C</sub>=DC20 mA at Max.

※Other than the Measurement mode, renewal of output can't be provided.

- Input

- ZERO Same as ZERO key.
  - A/Z Same as A/Z key
  - A/Z OFF Same as A/Z OFF key.
- ※Above are effective once with the pulse input and its width is more than 100 ms.

- HOLD Hold of display and BCD output
- LOCK Prohibition of key operation
- SEL.1, SEL.2 By the combination of 2 inputs conditions, target of output for BCD output can be changed as follows:

Open both SEL.1 and SEL.2 : Interlocked with load display

Short only SEL.1 : Cancelled portion of A/Z

Short only SEL.2 : Fixed net weight

Short both SEL.1 and SEL.2 : Fixed gross weight

※Above are level inputs, effective during the short of input for more than 100 ms.

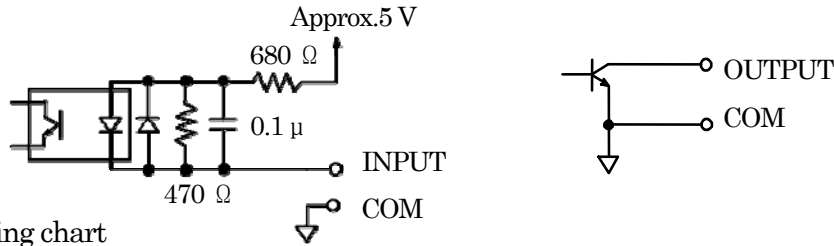
- Layout of BCD output connector pin Suitable plug: 57-30360 (made by DKK)

1	COM.	13	8×10 <sup>2</sup>	25	ERROR
2	1×10 <sup>0</sup>	14	1×10 <sup>3</sup>	26	P.C.
3	2×10 <sup>0</sup>	15	2×10 <sup>3</sup>	27	HOLD
4	4×10 <sup>0</sup>	16	4×10 <sup>3</sup>	28	LOCK
5	8×10 <sup>0</sup>	17	8×10 <sup>3</sup>	29	SEL.1
6	1×10 <sup>1</sup>	18	1×10 <sup>4</sup>	30	SEL.2
7	2×10 <sup>1</sup>	19	COM.	31	ZERO
8	4×10 <sup>1</sup>	20	2×10 <sup>4</sup>	32	A/Z
9	8×10 <sup>1</sup>	21	4×10 <sup>4</sup>	33	A/Z OFF
10	1×10 <sup>2</sup>	22	8×10 <sup>4</sup>	34	N.C.
11	2×10 <sup>2</sup>	23	POL.	35	N.C.
12	4×10 <sup>2</sup>	24	OVR.	36	N.C.

※ Don't connect with the N.C. pin

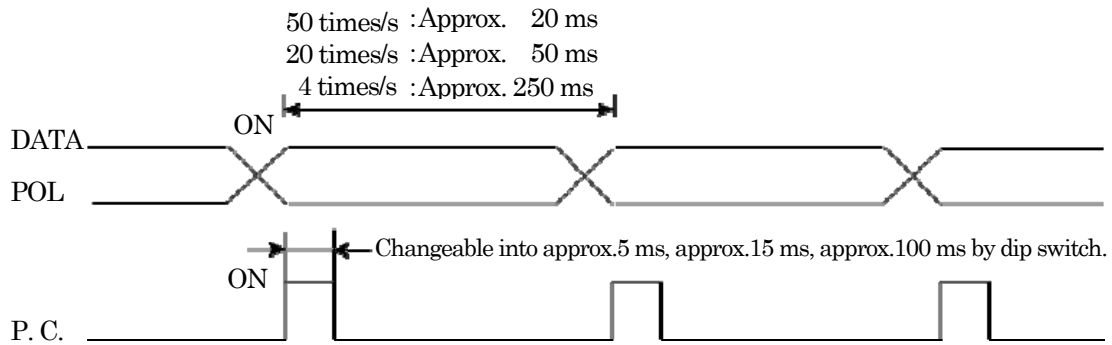
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- Equivalent circuit for input/output



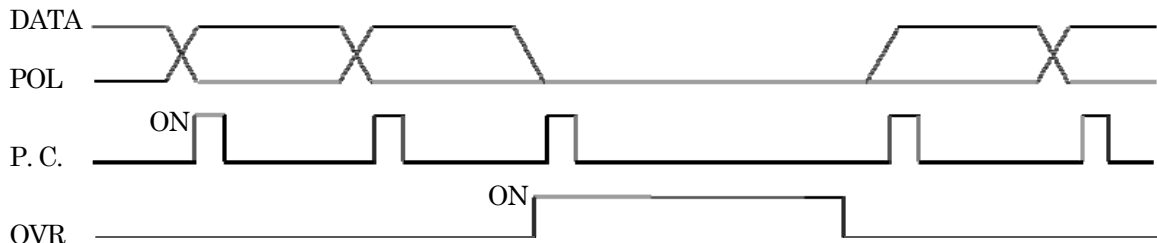
- Timing chart

### ① Normal



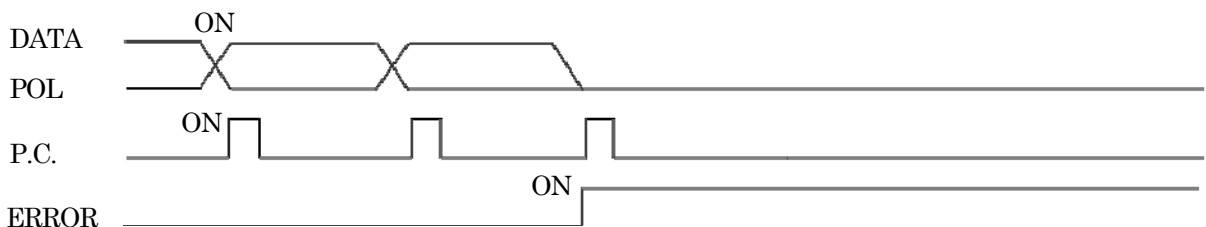
※ At the time of data output of all of P.C., DATA and POL., output transistor will be ON (Negative logic electrically).

### ② When data is over



※ At the time of OVR output, output transistor of OVR signal will become ON (Negative logic electrically). Moreover, all of the output transistor of P.C., DATA, and POL will become OFF condition (Positive logic electrically).

### ③ When error is occurred.



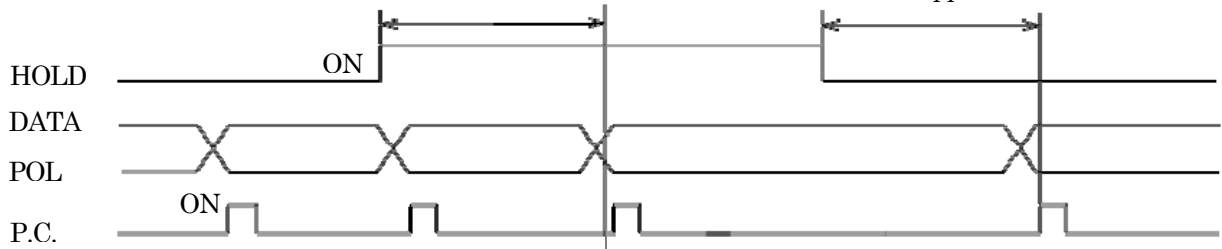
※ At the time of ERROR output, output transistor of ERROR signal will become ON (Negative logic electrically). Moreover, at the time of ERROR output, all of the output transistor of P.C., DATA and POL. will OFF condition (Positive logic electrically). (As for P.C., it will be OFF after one shot of operation.)

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④ At the time of HOLD signal input

50 times/s : Approx. 120 ms at max.  
 20 times/s : Approx. 150 ms at max.  
 4 times/s : Approx. 350 ms at max.

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 20 times/s : Approx. 150 ms at max.  
 4 times/s : Approx. 350 ms at max.



※ P.C. output transistor will be OFF condition (Positive logic electrically) at the time of HOLD signal input.

※ However, as for P.C., it will be OFF condition after one shot of operation is over.

※ After inputting HOLD signal, the following response times will be required until DATA and POL. are frozen or HOLD is cancelled.

At 50 times/s : Approx. 120 ms at max.

At 20 times/s : Approx. 150 ms at max.

At 4 times/s : Approx. 350 ms at max.

#### 2-6. Various kinds of functions

- Zero tracking                      Stabilizes the variation of zero within the constant condition.
- Digital filter                      Stabilizes the data through the processor inside of CPU.
- Stabilized filter                    Makes the digital filter strengthened/stabilized only when variable width of load is within the constant value.
- Change target of load display                      Selects the target of display from Gross weight and Net weight.
- Change of target of HOLD                      By the combination with “Display” and “BCD output”, target for HOLD can be made.
- Key lock                              Prohibition of operation of optional key  
 ※ Operation is different from LOCK function of external control.
- Change of target of output                      Target of output can be changed whichever “Display value”, “Net weight” and “Gross weight”.

#### 3. General specifications

- Operating temperature/humidity range
  - Temperature                      -10 °C to 50 °C
  - Humidity                              Less than 85 %RH (Non condensing.)
- Power supply
  - Power supply voltage              DC24 V (DC18 V to 36 V)
  - Power consumption                Approx. 9 W at maximum (At DC24 V)
- Insulation resistance              100 MΩ or more, at DC500 V (DC power supply ↔ GND)
- Withstand voltage                AC500 V for 1 min. (DC power supply ↔ GND)
- Outline dimensions(W × H × D)                      220 mm × 130 mm × 25 mm
- Weight                                Approx. 250 g

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### 4. Standard specifications at the shipment

- Bridge power supply DC10 V
- Span adjustment 2 000 display at the input of 0.3 mV/V
- Tare weight 0 mV/V
- The minimum scale 1
- Decimal point Non

### 5. Accessories

- Instruction manual 1 piece
- Midget fuse of 5 A 1 piece
- Short bars for A-F, C-G 2 pieces
- BCD output plug(57-30360)  
1 piece
- Unit seal 1 piece

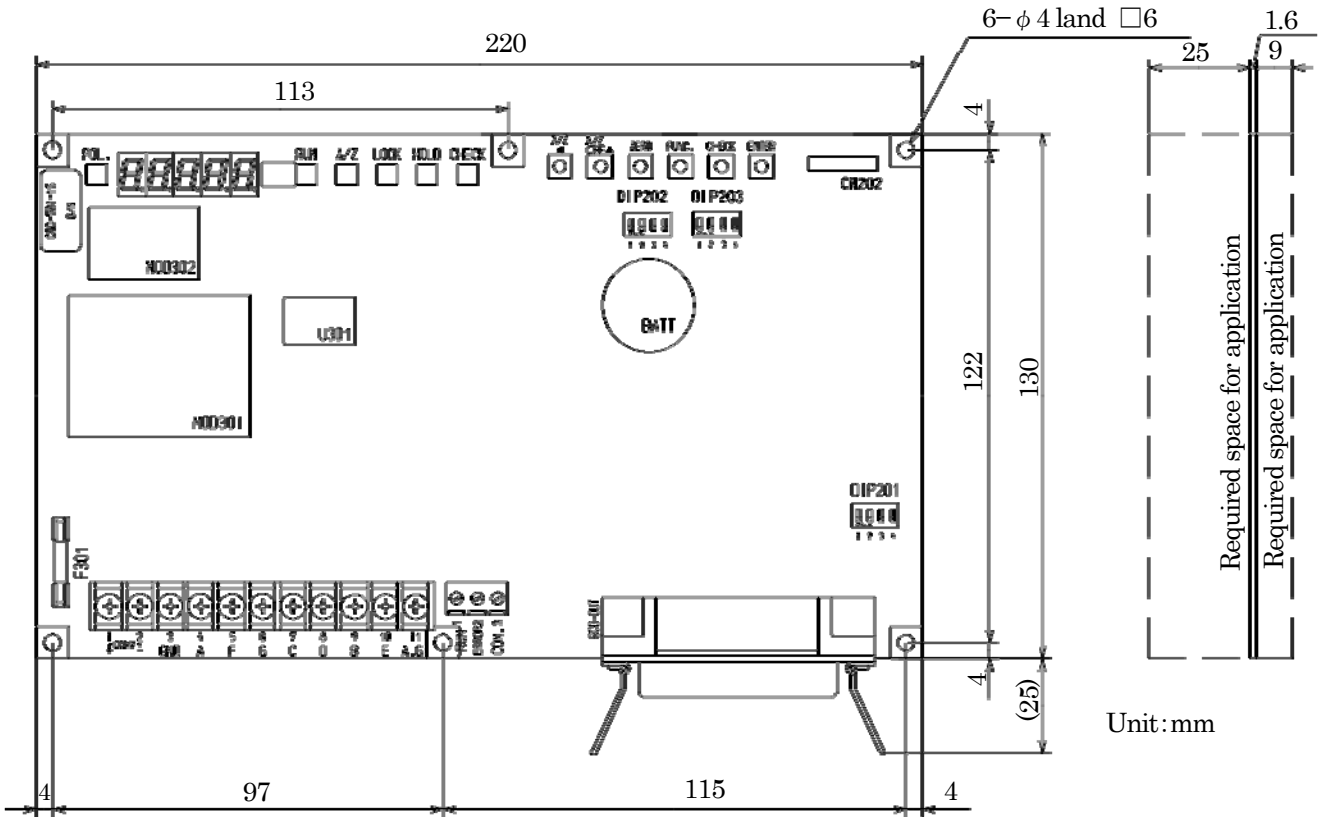
### 6. Options

#### 6-1. Metal cover

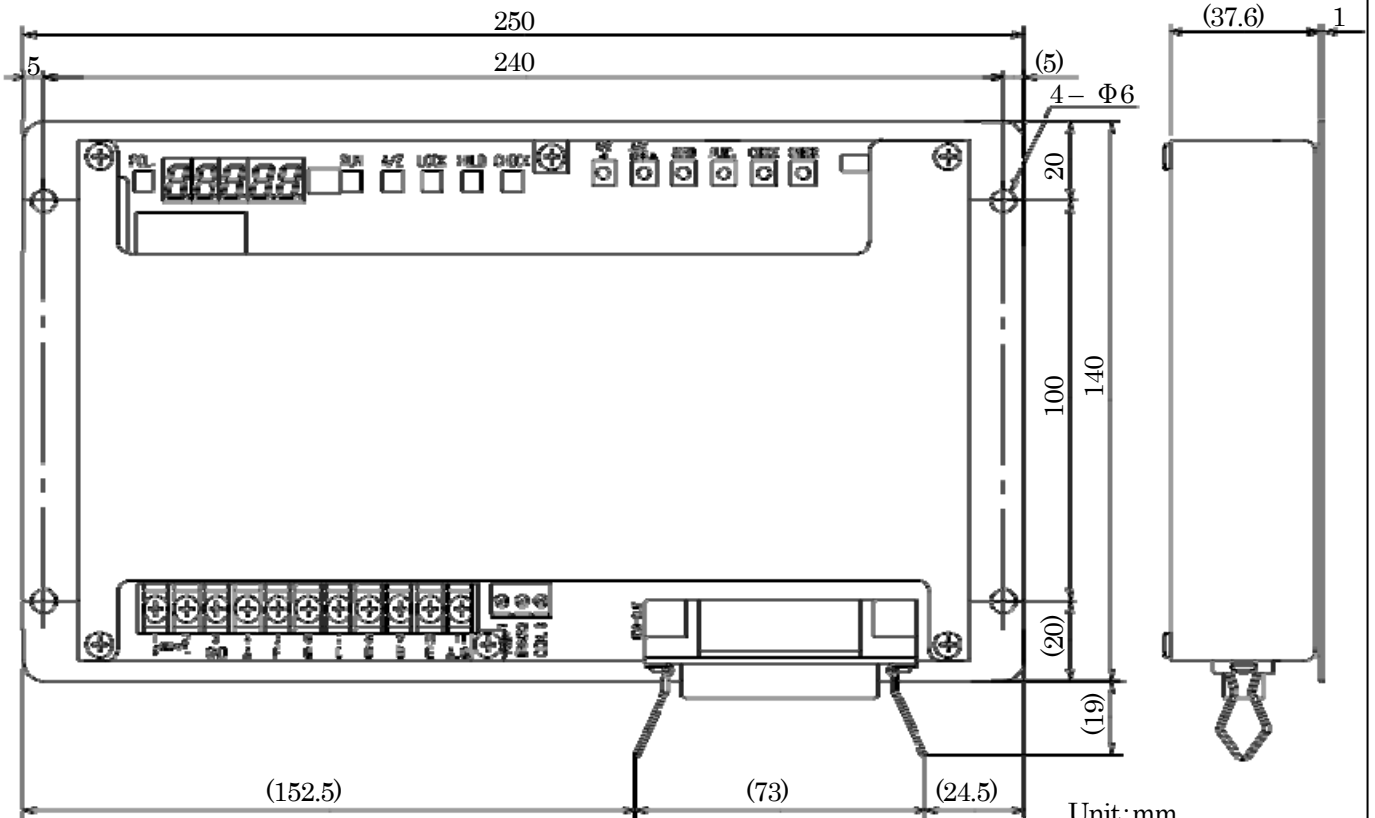
- P/N CSD581-P80
- Specifications
  - Outline dimensions(W × H × D)  
250 mm × 140 mm × 38.6 mm (Excludes protrusion)
  - Weight Approx. 550 g

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### 7. Outline dimension



Unit: mm



Unit: mm

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### 8. Conformity of CE standard

The instrument has conformed to 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”

**RoHS compliant**

#### 8-1. Storage case

The storage case is a thing which is the shielding case where EMC solution was given.

#### 8-2. Wiring

All wirings must be the combination of the connector with the effect of the shield of a screened cable and a metallic shell . Or, thing that the shield processing is surely done by the conduit piping including in the case of storage.

#### 8-3. Power supply

The power supply by which DC24 V is supplied to the instrument must use the conformed product of CE standard, and set the instrument up in the same storage case.

Install the surge solution element which corresponds to the power supply voltage on the first side in “Between the line and the line” and “Between the line and the earth” on the first side of the power supply.

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