Minebea

SPECIFICATIONS

Digital Peak Holder

CSD-819D

Spec. No.EN382819D 1/17

1. General

The instrument is a digital peak holder for strain gage applied transducer, and its panel sizes 96 mm × 96 mm.

2. Specifications

2-1. Specifications for analog section

- Bridge power supply 10 V DC ± 0.5 V within 60 mA (Changeable to 5 V DC or 2.5 V DC)
- Applicable transducers
  - At 10 V DC Up to 2 pieces of strain gage applied transducers (350 Ω) are connectable.
  - At 5 V DC Up to 4 pieces of strain gage applied transducers (350 Ω) are connectable.
  - At 2.5 V DC Up to 8 pieces of strain gage applied transducers (350 Ω) are connectable.
- Input range ± 3.1 mV/V
- Input sensitivity 0.4 μV/digit (At bridge power supply 10 V DC.)
  0.2 μV/digit (At bridge power supply 5 V DC or 2.5 V DC.)
- Zero adjustment range ± 2.0 mV/V
- Monitor output Approx. 2 V ± 0.1 V per 1 mV/V of sensor input
  (for 10 V DC bridge power supply voltage)
  *0 V±0.1 V output when zero point input.
  Load resistance 2 kΩ or more.
- Non−linearity 0.025 %F.S.
- Temperature coefficient
  - Zero point ± 0.5 μV/℃
    (When calibrating at input sensitivity or higher.When calibrating within ±1.0 mV/V of the zero point when the gauge voltage is 10 V DC.)
  - Sensitivity ± 0.01 %F.S./℃(When calibrating at input sensitivity or higher)
- Input filter 1 kHz (Changeable to 10 Hz, 100 Hz.)
- A/D sampling 2 000 times/s (Changeable to 100 times/s, 500 times/s, 1 000 times/s.)
- CHECK value Approx.0.4 mV/V
  (Setting by each of 0.1 mV/V is available in the range from approx. 0.1 mV/V to 2.4 mV/V)
  *This function can't be obtained when CSD-819D-31 is installed.
- Terminal block assignments

No.	Signal name	Explanation
A	＋EXC	Load cell power supply＋
C	－EXC	Load cell power supply－
D	＋SIG	Load cell input＋
B	－SIG	Load cell input－
E	SLD	Shield
＋	OUT＋	Monitor output＋
－	OUT－	Monitor output－

*Plug provided :15EDGKM-3.5-07P-14-00Z(H) (DEGSON)

2-2. Specifications for Voltage output (Standard equipment)

- Output range ± 10 V DC (F.S. setting is available by the Function.)
- Load resistance 5 kΩ or more.
- Output rate Synchronous with A/D sampling
- Output resolution Approx.1/12 000 or more.
- Over range Approx.11 V DC at "OL" display.
  Approx.−11 V DC at "−OL" display.
- Non−linearity 0.0025 %F.S.
- Temperature coefficient
  Zero ± 0.015 %F.S./℃
  Sensitivity ± 0.015 %F.S./℃
- Terminal block assignments

No.	Signal name	Explanation
1	SLD	Shield
2	OUT+	Analog output+
3	OUT−	Analog output−

2-3. Specification for digital section

- Load display
  Display range −11 000 to 11 000 (When calibrating at minimum scale 1)
  Display increment 1 (changeable to 2, 5 or 10)
  Display Red 7 segments LED, with 17 mm character's height
  Over display "−OL" display when minus over and "OL" display when plus over.
- Comparator display
  Display range −99 999～99 999
  Display Green 7 segments LED, with 8 mm character's height
  Number of display 1 point (select from S0, S1, S2, S3 or S4.)
- Condition display SEL.1, SEL.2, CHECK, HOLD, PEAK, MEAS., END
- Judgement display S0, S1, S2, S3, S4
- Display rate 20 times/s (4 times/s, 50 times/s,100 times/s changeable)
- Decimal point display No display, 10^1, 10^2, 10^3 or 10^4 changeable

2-4. Front panel sheet key function

- FUNC. Switches to function mode.
- ZERO Resets the display to zero (easy zero adjustment).
- CAL-Z/ ◀ Holding this key down for at least two seconds performs easy zero calibration mode.
  / Holding CAL-Z/ ◀ key and CAL-S / ▲ key down at the same time for at least two seconds performs easy calibration locking mode.
  /Carry the set value
- CAL-S / ▲ Holding this key down for at least two seconds performs easy calibration span mode./ Increments the setting value.
- PEAK/TRACK Switches between peak mode and tracking mode.
- RESET Reset of peak value, fixing 0 display during ON.
- CHECK On and Off of check value
- S※ / ENTER S※(※=0 to 4) Display the set value / Enter key

2-5. External control input function

- External control input

  You can select any of six signals among those listed below.

  ・Zero set
  ・Zero set clear
  ・Hold (Pulse)

  *Above is effective once at the pulse input and pulse width of 50 ms or more.
  (Pulse width is changeable to 1 ms, 2 ms, 5 ms, 10 ms or 20 ms.)

  ・Hold (Level)
  ・PEAK/TRACK
  ・RESET
  ・SEL.1
  ・SEL.2
  ・CHECK
  ・All key lock

  *Above is level input, and it is effective during the input of short of 50 ms or more.
  (The level width is changeable from 1 ms, 2 ms, 5 ms, 10 ms and 20 ms)

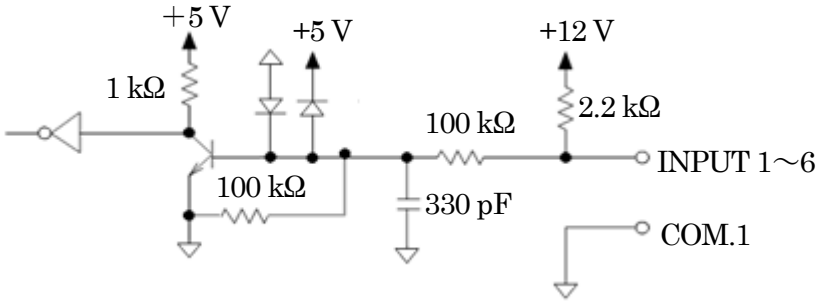
- External control input connection

  The types of external control input consist of a no-voltage contact input type (standard) and a voltage input type (option).

  ・No-voltage contact input type

  The no-voltage contact input type circuit inputs signals by short-circuiting/opening the path between the input and COM1 terminals. To short, use contact (such as relays and switches) or non-contact methods (such as transistor open collector output).
  When you connect the transistor, use the sink type for the connection.

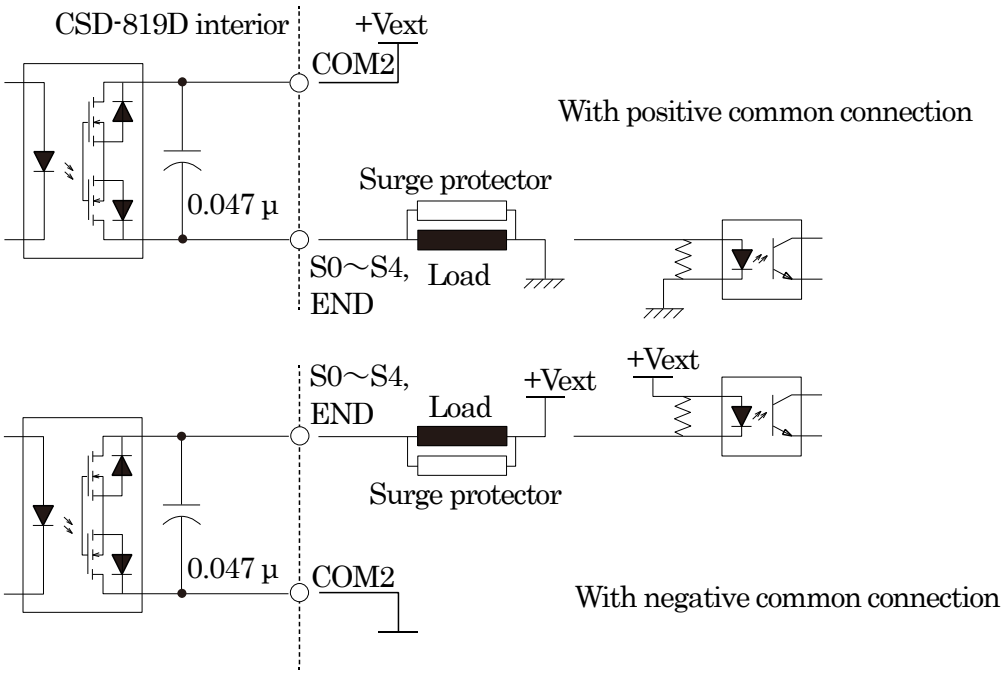
- Equivalent circuit



Internal power supply voltage: 12 V DC, short-circuit current: approx. 5 mA

2-6. External control Output

- S1,S2,S3,S4 The semiconductor relay output is ON when reached under/over the comparator set value.
- S0 The semiconductor relay output is ON with either condition in below by function setting.
  - ・FULL condition (100 % of rated load).
  - ・When the selecting pairs of S1, S2, S3 or S4 are OFF condition.
  - ・Operates when reached under/over the S0 set value.
    (Same as the comparative operation of S1, S2, S3 and S4.)
  - ・Turned ON for synchronous with HOLD led of condition display.
  - ・Turned ON for synchronous with PEAK led of condition display.
  - ・Turned ON for synchronous with MEAS. led of condition display.
- External control input connection
  The external control output circuit consists of a semiconductor relay output (photo MOS relay output). A positive common connection or common connection can be used.
- Equivalent circuit



Maximum rated voltage: 30 V DC, maximum rated current: 100 mA per point.

2-7. Comparator function

- Set value －99 999 ～99 999
- Number of sets 5 (S0、S1、S2、S3、S4) *"S0" is depends on function setting.
- Hysteresis data set value 0～99 digits
- Hysteresis time width setting 0~9.99 s
- Direction of hysteresis Selectable whichever "ON delay" or "OFF delay".
- Conversion times of comparator Synchronous with A/D sampling.
- Comparator operation target PEAK or TRACK can be set independently.

2-8. External control input/output terminal block assignments

Terminal No.	Purpose	Terminal No.	Purpose
A1	External control input (INPUT1)	B1	External control output (END)
A2	External control input (INPUT2)	B2	External control output (S0)
A3	External control input (INPUT3)	B3	External control output (S1)
A4	External control input (INPUT4)	B4	External control output (S2)
A5	External control input (INPUT5)	B5	External control output (S3)
A6	External control input (INPUT6)	B6	External control output (S4)
A7	N.C.	B7	N.C.
A8	External control input (COM1)	B8	External control output (COM2)

*Plug provided :N361J016AU (OTAX)

*Connector hood provided :N360C016B (OTAX)

2-9. Various kinds of functions

- Input filter — Stabilized the zero point fluctuation in a constant condition.
- Digital filter — Stabilize data by moving average processing by CPU.
- Easy calibration — Holding down the CAL-Z key or CAL-S key for at least two seconds allows quick access to the corresponding setting screen and calibration screen.
- Communication calibration
  You can execute the calibration based on communications through the interface (optional RS-232C, RS-422/485) without key operation.
- Check value — An additional load equivalent to the set value. Using this value, for example, in the pre-work check, allows you to confirm the original calibration status is maintained.
- Change of HOLD target
  The target of Hold can be made by the combination with "Display", "Comparative output", "Analog output" and "BCD output(Optional)".
- Key function lock — Prohibits key operation and execution of its function.
- Changeover the analog output target
  Target of analog output can be selected from "TRACK/Total load" and "PEAK/Reading".
- Changeover the calibration data
  Four types of calibration data are stored and selected by function or external control input (SEL.1 and SEL.2).
- Changeover the comparator brand
  Up to four types of comparator setting values for S0, S1, S2, S3, and S4 can be stored and switched using a function or external control input (SEL.1 and SEL.2).

  *Set the switching target of "calibration data" and "Comparator Brand" with the function.
- Selection of peak Mode
  Selectable from 24 mode after the combination of 6 kinds of hold mode (Peak hold, Bottom hold, Peak and bottom hold, Maximum value hold, Minimum value hold and Inflection point hold), and 4 kind of zone mode (All zone, Selected zone, Selected time and zone and Automatic selected start time and zone)
- Monitor output — This function outputs approximately 2 V per 1 mV/V (when bridge power supply is 10 VDC.) before A/D conversion of the input signal from strain gage type transducer.
- Monitor mode — This mode converts the load currently applied to the sensor into a value expressed in mV/V and displays the result. It is effective in finding the cause when the displayed load is abnormal or unstable.

2-10. USB interface (for connection with EzCTS2)

- Specifications — Compliant with USB2.0
  (can also be used with USB1.1 compatible equipment)
- Output connector — USB connector B type (Female)

*To use USB interface,you must install the specialized driver to the PC.

3. General specifications

- Operating temperature/humidity range
  - Temperature: −10 ℃ to 50 ℃
  - Humidity: 85 %RH or less (Non−condensing)
- Usage altitude: 2 000 m or less
- Pollution degree: 2 or less
- Overvoltage category: Category Ⅱ
- Power supply
  - Power supply voltage: 100 V AC to 240 V AC (Permissible variation range 85 V AC to 264 V AC)
  - Power supply frequency: 50/60 Hz
  - Power consumption: Approx.16 VA at max. (At 230 V AC with options.) Approx.14 VA at max. (At 100 V AC with options.)
- Inrush Current: 10 A, 1ms ：100 V AC average load condition (Ordinary temperature and cold start) 15 A, 1ms ：200 V AC average load condition (Ordinary temperature and cold start)
- Outline dimensions: 96 mm × 96 mm × 129.5 mm (W × H × D)
- Dustproof waterproof: During the panel mount is installed, the front panel section becomes IP 65 or equivalent. (When the attached panel mounting gasket is installed.)
- Weight: Approx.500 g (without options)

4. Standard specifications at the shipment

- Bridge power supply: 10 V DC
- Span adjustment: ± 3 000 display at the input of ± 3.0 mV/V.
- The minimum scale: 1
- Analog output: 0 V to ± 10 V with 0 to ± 3 000 display.

5. Accessories

- Start guide (Japanese / English): 1 piece
- Units sticker: 1 piece
- Panel mounting brackets: 2 pieces
- Panel mounting seal: 1 piece
- External control input/ output plug: 1 piece
- External control input/ output hood: 1 piece
- Load cell and monitor output plug: 1 piece

*The following are included with each option.

- BCD output connector plug: 1 piece
- BCD output connector hood: 1 piece
- RS-422/485 connector plug: 1 piece

6. Options

6-1. Current output

- P/N CSD-819D-P07
- Output range 4 mA to 20 mA DC
- Load resistance 260 Ω or less
- Output cycles Synchronous with A/D sampling
- Output resolution Approx.1/12 000
- Over range Approx.21.6 mA DC at the display of "OL",
  Approx.2.4 mA DC at the display of "−OL"
- Non−linearity 0.025 %F.S.
- Temperature coefficient
  - Zero ±0.005 %F.S./℃
  - Sensitivity ±0.01 %F.S./℃
- Terminal block assignments

Terminal No.	Signal name	Description
1	SLD	Shield
2	OUT+	Analog output ＋
3	OUT−	Analog output −

*Voltage output can't be obtained when this current output option is installed.

6-2. BCD output (Sink output)

- P/N CSD-819D-P15
- Output

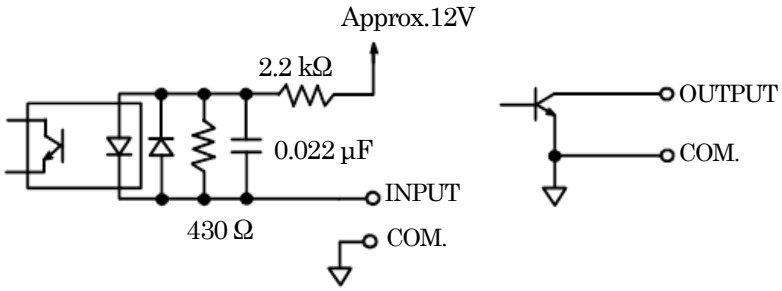
BCD 5 digits		Parallel output with polarity (POL.) (Output on for negative polarity and off for positive polarity)
P.C.(Print command)		ON for a constant time after conversion of BCD output is completed.
ERROR		ON at the occurrence of various kinds of errors.
OVR (over)		ON at overload.

*Above are open collector outputs. VCE=30 V , IC=30 mA

- Output times 2 000 times/s
(Changeable to 4 times/s, 20 times/s, 50 times/s, 100 times/s, 200 times/s or 1 000 times/s)
- Input

INPUT1 to INPUT6	Linked with external control input.
BCD−DISABLE	Compulsive OFF of BCD relative output. (High impedance)

- Equivalent circuit of input / output section



SPECIFICATIONS

- Connector pin assignments

	Signal	Description		Signal	Description
1	COM.	Common	19	COM.	Common
2	1×10^0	10^0 digit Parallel output	20	2×10^4	10^4 digit Parallel output
3	2×10^0		21	4×10^4	
4	4×10^0		22	8×10^4	
5	8×10^0		23	POL.	Polarity output
6	1×10^1	10^1 digit Parallel output	24	OVER	OL output
7	2×10^1		25	ERROR	ERROR output
8	4×10^1		26	P.C.	Print command output
9	8×10^1		27	INPUT2	External control input
10	1×10^2	10^2 digit Parallel output	28	N.C.	Not connected
11	2×10^2		29	INPUT5	External control input
12	4×10^2		30	INPUT6	
13	8×10^2		31	INPUT1	
14	1×10^3	10^3 digit Parallel output	32	INPUT3	
15	2×10^3		33	INPUT4	
16	4×10^3		34	N.C.	Not connected
17	8×10^3		35	BCD-DISABLE	BCD forced stop input
18	1×10^4	10^4 digit Parallel output	36	N.C.	Not connected

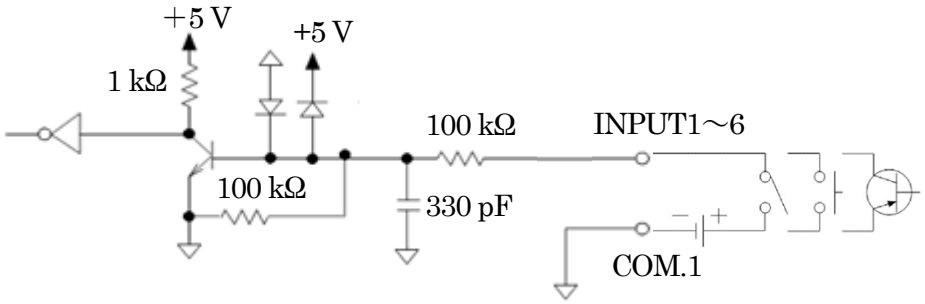
*All of the COM terminals are common.
*Do not wire the non-connected terminals.
*Insulated by photocoupler from internal circuit.
*Plug provided :10136-3000 PE (3M)
*Connector hood provided :10336-52A0-008 (3M)

6-3. External control input : Voltage input type

- P/N CSD-819D-P44
- External control input connections

  The types of external control input consist of a no-voltage contact input type (standard) and a voltage input type (option).
- Voltage input type overview

  A signal is input by applying a voltage between the input and COM.1 terminals. In this case, you must short-circuit or open the path between these terminals using the external power supply voltage, contacts (e.g., relays and/or switches), or contactless devices (e.g.,transistors). With the voltage input type circuit, use a minus common connection. When connecting a transistor, connect a source type.
- Equivalent circuit



Rated voltage: 27.6 Vmax DC
On conditions: 9 V DC or more
(load current approx. 10 mA for external power supply voltage 24 V DC)
Off conditions: 1 V DC or less

6-4. RS−232C interface

- P/N CSD-819D-P74
- Specifications
  - Baud rate: Select 1 200, 2 400, 4 800, 9 600, 19 200, 38 400, 76 800 and 115 200 bps.
  - Data length: Select from 7 bit or 8 bit.
  - Parity・bit: Select from Non, Even or Odd.
  - Stop・bit: Select from 1 bit or 2 bit.
  - Terminator: Select from CR＋LF or CR
  - Communication method: Half−duplex
  - Synchronous method: Start−stop synchronous method
  - Transmission data: ASCII code
  - Cable length: Up to 15 m
- Display: Input/Output monitor with LED.

- Connector pin assignments — Compatible plug：DE-9S-NR (JAE) or equivalent

Pin No.	Signal
1	CD
2	TXD
3	RXD
4	N.C.
5	S.G.
6	N.C.
7	RTS
8	CTS
9	N.C.

*Connector plugs are not included.
*The engagement locking screws for the RS-232C interface connector plugs are imperial screws.
*Do not wire the Not connected terminals.
*Insulated by photocoupler from internal circuit.

- Function
  - Reading out the load.
  - Reading out the condition.
  - (SEL.1、SEL.2、CHECK、HOLD、PEAK、MEAS.、END)
  - Changing the condition. (ZERO、PEAK/TRACK、RESET)
  - Reading out the comparator. (S0、S1、S2、S3、S4)
  - Change of the comparator. (S0、S1、S2、S3、S4)
  - Reading out the comparator judgement.
  - Change of the calibration data and comparator brand.
  - Transmission error code(Error code about transmission)
  - Reading out set value of the various function
  - Change the set value of the various function
  - Load calibration

6-5. RS−422/485 interface

- P/N CSD-819D-P76
- Specifications

Baud rate	Select 1 200, 2 400, 4 800, 9 600, 19 200, 38 400, 76 800 and 115 200 bps.
Data bit length	Select from 7 bit or 8 bit.
Parity・bit	Select from Non, Even or Odd.
Stop・bit	Select from 1 bit or 2 bit.
Terminator	Select from CR＋LF or CR.
Communication method	RS-422 Full-duplex, RS-485 Half−duplex
Synchronous method	Start−stop synchronous method
Address	Select one from 0 to 31
Transmission data	ASCII code
Cable length	Approx.1 km
Numbers of connection	RS-422 10 units at maximum, RS-485 32 units at maximum
Termination	Internal (Existence or nonexistence is selected by plugging in the connector board)
RS422/485 switching	Set by function
Data transmission mode	Selectable from Command, Stream

- Display Input/Output monitor with LED
- Connector pin assignments

Pin No.	Signal name	Description
1	SLD	Shield
2	S.G.	Signal ground
3	TRM.	Terminating resistance
4	RDB	Differential input (-)
5	RDA	Differential input (+)
6	SDB	Differential output (-)
7	SDA	Differential output (+)

*Insulated by photocoupler from internal circuit.
*Compatible connector plug :XW4B-07B1-H1 (OMRON)

- Function
  Reading out the load.
  Reading out the condition.
  (SEL.1、SEL.2、CHECK、HOLD、PEAK、MEAS.、END)
  Changing the condition. (ZERO、PEAK/TRACK、RESET)
  Reading out the comparator. (S0、S1、S2、S3、S4)
  Change of the comparator. (S0、S1、S2、S3、S4)
  Reading out the comparator judgement.
  Change of the calibration data and comparator brand.
  Transmission error code(Error code about transmission)
  Reading out set value of the various function
  Change the set value of the various function
  Load calibration

6-6. Voltage input type

- P/N CSD-819D-P31
- DC voltage input range ± 10 V (input resistance: approx. 1 MΩ)
- Input sensitivity 0.1 mV/digit
- DC voltage input rating ± 11 V
- Non-linearity 0.05 %F.S
- Zero adjustment range ± 0.5 V
- Offset setting range ± 4 V (Set on F-86)
- Effects of temperature
  - Zero point ± 0.01 %F.S./°C
  - Sensitivity ± 0.01 %F.S./°C
- Monitor output 1 V ± 0.1 V per 1 V voltage input
  *The zero calibration value will be canceled if the offset is set
  Load resistance: 2 kΩ or greater
- Standard specifications at the shipment from factory
  - Span adjustment ±10 000 display at the input of ±10 V
  - Minimum scale 1
  - Analog output 0 to ± 10 V with 0 to ± 10 000 display

*The check function cannot be used when this option is installed.

- Terminal block assignments

Terminal No.	Signal	Description
	N.C.	Unused pin
	N.C.	Unused pin
D	+SIG	Voltage input +
B	-SIG	Voltage input -
E	SLD	Shield
+	OUT+	Monitor output +
-	OUT-	Monitor output -

*Plug provided :15EDGKM-3.5-07P-14 -00Z(H) (DEGSON)

6-7. Optional combinations

P07 : Current output
P31 : Voltage input
P44 : External control input : Voltage input type
P15 : BCD output (Sink output)
P74 : RS-232C interface
P76 : RS-422/485 interface

Code when ordering

CSD-819D-※1-※2-※3-※4

※1 Analog output
None : Voltage output
07 : Current output

※2 Signal input
None : Standard configuration
(Strain gage based transducer connection)
31 : Voltage input

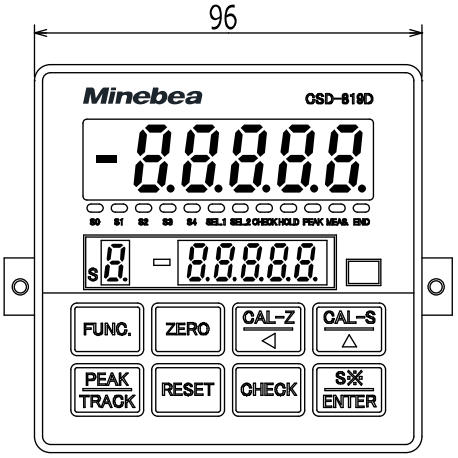
※3 External control input
None : No-voltage input type
44 : Voltage input type

※4 Interface
None : No optional interfaces
15 : BCD output (sink type)
74 : RS-232C
76 : RS-422/485
(Only one of the above can be mounted)

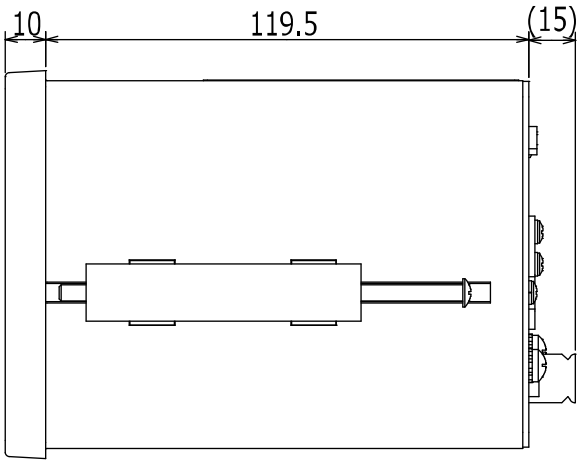
Example : When ordering current output + voltage input + RS-232C version: CSD-819D-07-31-74

7. Outline dimensions

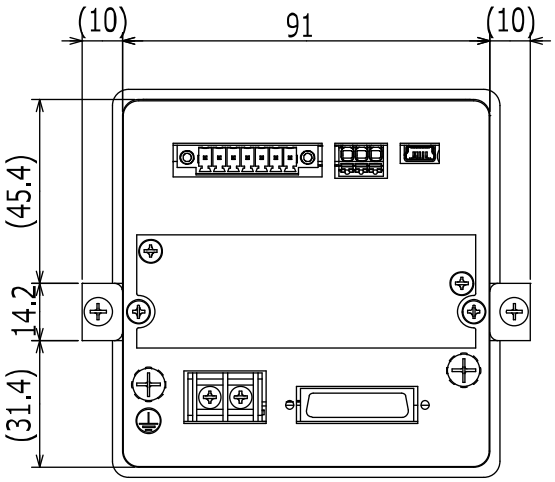
Front



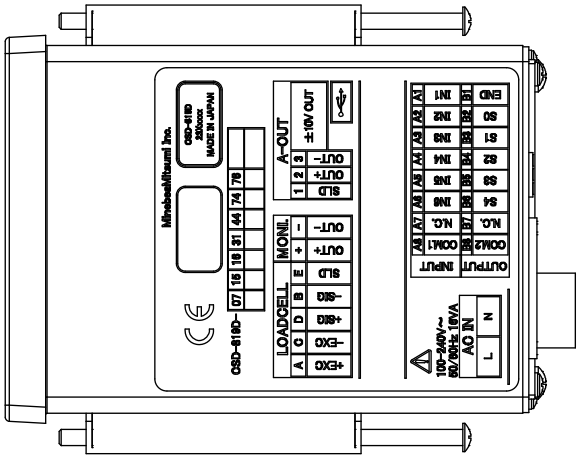
Side



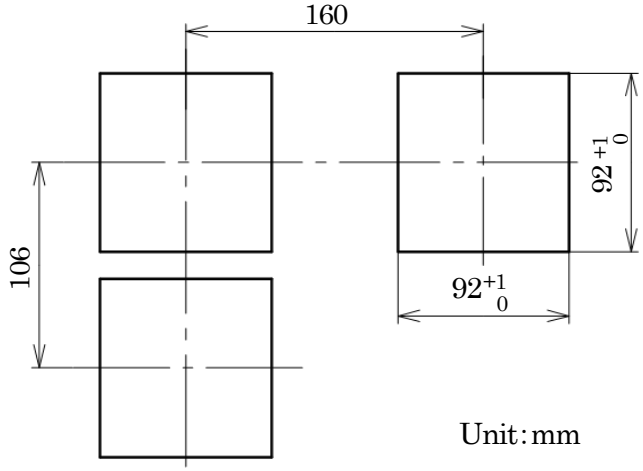
Rear



Upper



Panel cutting dimensions



Unit:mm

8. CE conformity standard

This equipment conforms to the following standards:

- EN IEC 61326-1:2021
  "Electrical equipment for measurement,control,and laboratory - EMC requirement matter"
  "Immunity test requirements for equipment intended for use in industrial locations"
- EN61010-1:2010+A1:2019
  "Safety requirement for electrical equipment for measurement, control and laboratory use-Part1 : General requirement"
- RoHS compliant

*CE conformity standard is not effective in case of using USB interface.

The using condition to suit this standard is as follows.

8-1. Wiring

①Shield processing

- Always use shielded cables, except for power cables.
- Connect the shield wire of the strain gauge based transducer cable to the SLD terminal on the connector.
- Connect the shield wire of the monitor output cable to the connector SLD terminal on the connector.
- Connect the shield wire of the analog output cable to the SLD terminal on the analog output connector board.
- Connect the shield wire of the external control input/output cable to the SLD terminal on the rear panel.
- Connect the shield wire of the BCD cable to the plug inside the connector hood.
- Connect the shield wire of the RS-232C cable to the plug inside the connector hood.
- Connect the shield wire of the RS-422/485 cable to the connector SLD terminal on the connector.

②Grounding

- Ground the equipment based on single grounding using the protective ground terminal on the rear panel.

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