Minebea

CSD-819C

SPECIFICATIONS

Digital Peak Holder

1. General

The instrument is a Digital Peak Holder with the panel of 96 mm × 96 mm designed for strain gage applied transducer.

2. Specifications

2-1. Specifications for analog section

- Bridge power supply: DC10 V ± 0.5 V within 60 mA (Changeable to DC5 V or DC2.5 V)
- Applicable transducer
  - At DC10 V: Up to 2 pieces of strain gage applied transducers (350 Ω) can be connectable.
  - At DC5 V: Up to 4 pieces of strain gage applied transducers (350 Ω) can be connectable.
  - At DC2.5 V: Up to 8 pieces of strain gage applied transducers (350 Ω) can be connectable.
- Input rang: Full scale (F.S.) setting is available at the input range from ± 0.4 mV/V to ± 3.1 mV/V.
  (When bridge power supply is DC5 V or DC10 V.)
  Full scale(F.S.) setting is available at the input range from ± 0.8 mV/V to ± 3.1 mV/V. (When bridge power supply is DC2.5 V.)
- Output range: DC ±10 V, Load resistance 5 kΩ or more
  (Full scale(F.S.) is set by the function.)
- Output times: 100 times/s, 500 times/s, 1 000 times/s or 2 000 times/s
  (Synchronous with A/D sampling rate.)
- Output resolution: Same as the display resolution.
- Zero adjustment range: ± 2.0 mV/V
- Non−linearity
  - Display: 0.025 %F.S.
  - Output: 0.025 %F.S.
- Temperature coefficient
  - Zero point: ±0.5 μV/℃
    (Input conversion, in F.S. setting at the input of ±0.5 mV/V to 3.1 mV/V)
  - Sensitivity: ±0.01 %F.S./℃
    (Input conversion, in F.S. setting at the input of ±0.5 mV/V to 3.1 mV/V)
- Input filter: 10 Hz, 100 Hz or 1 kHz changeable.
- A/D sampling rate: 2 000 times/s (100 times/s, 500 times/s or 1 000 times/s changeable.)
- CHECK: Approx.0.3 mV/V
  (Setting with the interval of about 0.1 mV/V is available in the range from Approx.0.1 mV/V to 2.0 mV/V)
  ※The extension cable is applied within 30 m of the Minebea's standard cable CAB−502 (4 wires)
  ※It is not applied when zener barrier is in use.
  ※This function cannot be used when CSD819C−P31 is installed.

SPECIFICATIONS

2-2. Specifications for digital section

- Load display
  - Display range: −11 000 to 11 000
  - Display increment: 1 (2, 5 or 10 changeable)
  - Display unit: 7 segment red LED with 17 mm character height
  - Over display: "−OL" display at the time of minus(−) over, and "OL" display at the time of plus(+) over
- Comparator display
  - Display range: −99 999 to 99 999
  - Display unit: 7 segment green LED with 8 mm character height
  - Number of display: 1 point (select from S0, S1, S2, S3 or S4.)
- Condition display: SEL.1, SEL.2, CHECK, HOLD, PEAK, MEAS. or END
- Judgement display: S0, S1, S2, S3 or S4
- Display rate: 20 times/s (4 times/s, 50 times/s or 100 times/s changeable)
- Decimal display: No display, 10^1, 10^2, 10^3 or 10^4 changeable

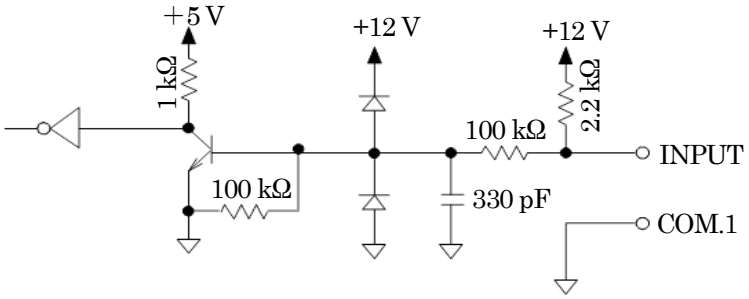
2-3. Function of front panel sheet key switch

- FUNC.: Change of function mode
- ZERO: Zero set
- S※/◀: S※(※=0 to 4) Display the set value/Carry the set value
- ▲: Increment the set value
- PEAK/TRACK: Change from Track and peak hold, Bottom hold, Peak bottom hold, Maximum value hold, Minimum value hold or Inflecting point hold (During all zone selecting mode).
  Or control of holding zone in Zone selecting mode and Time/zone selecting mode.
- RESET: Reset of peak value, fixing 0 display during ON.
- CHECK: On and Off of check value
- ENTER: Enter key

SPECIFICATIONS

2-4. External control function

- ZERO — Same as the ZERO key
  ※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.)
- PEAK/TRACK — Change of Track or Peak hold, Bottom hold, Peak bottom hold, Maximum value hold, Minimum value hold or Inflecting point hold
  (While all zone selecting mode.)
  Open :Track
  Short :Peak hold, Bottom hold, Peak bottom hold, Maximum value hold,Minimum value hold or Inflecting point hold (set by function)or control of holding zone in Zone selecting mode or Time/zone selecting mode.
- HOLD — Hold of Display, Comparison output, Analog output or BCD output
- RESET — Same as the RESET key, reset condition can be made by short.
- SEL.1、SEL.2 — Change of 4 kinds of "Calibration data" or "Comparator code" combined with SEL.1 and SEL.2. (Set the changing object from "Calibration data" and"Comparator code" by the function.)
  ※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)
- Equivalent circuit of input section for external control

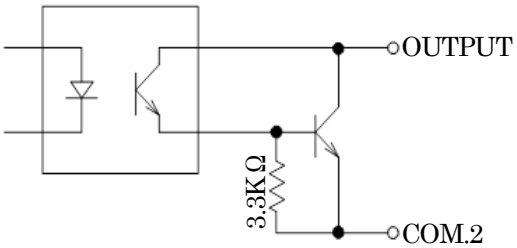


2-5. Comparator function

- Set value — −99 999 to 99 999
- Numbers of setting — 5 points(S0、S1、S2、S3、S4) ※S0 is set by function.
- Setting hysteresis data width
  0 to 99 digits
- Setting hysteresis time width
  0 to 9.99 s
- Direction of hysteresis — Changeable to whichever "On delay" or "Off delay"
- Comparator conversion rate
  Changeable to 100 times/s, 500 times/s, 1 000 times/s or2 000 times/s
  (Synchronous with A/D sampling rate.)

2-6. Open collector output signal

- S1、S2、S3、S4 The open collector is ON when reached under/over the comparator set value.
- S0 The open collector 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.
- Specifications of open collector
  V_{CE}=DC30 V、I_C=30 mA MAX
- Equivalent circuit of open collector output



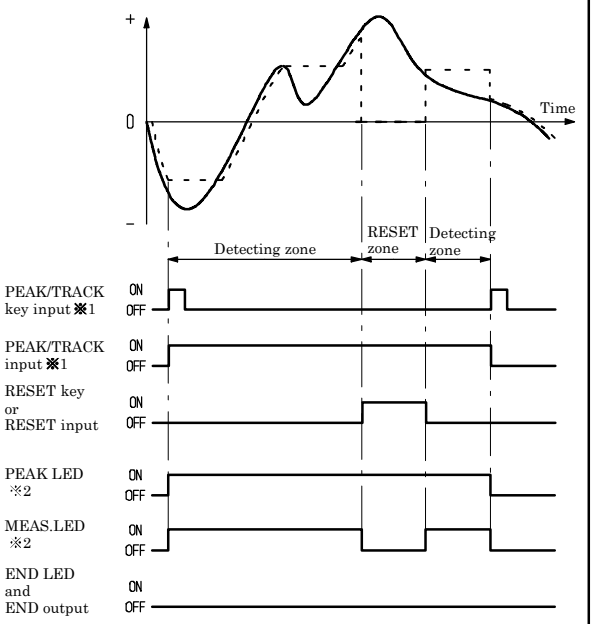
2-7. Various functions

- Digital filter Stabilizes the data by the computing process through CPU.
- Change of target of HOLD
  With the combination of "Display","Comparative output","Analog output", "BCD output (Option)", target of HOLD can be made.
- Sheet key lock Prohibition of operation of optional key.
- Change target of analog output
  The target of analog output can be changed either "TRACK value"or "PEAK value".
- Change of calibration data
  Four kinds of calibration data can be memorized, and they be selected by the function or the external control input (SEL.1 and SEL.2).
  (The change object of "Calibration data" and "Comparator code" is set by the function.)
- Change of comparator code
  The comparator set value of S0, S1, S2, S3 and S4 can be memorized up to four kinds, and they be changed by the function or the external control input (SEL.1 and SEL.2).
  (The change object of "Calibration data" and "Comparator code" is set by 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)

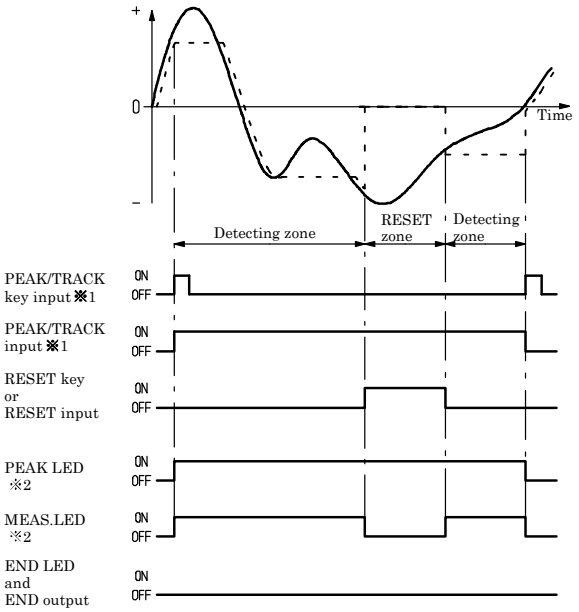
SPECIFICATIONS

——— Load
- - - - - - - Display of load

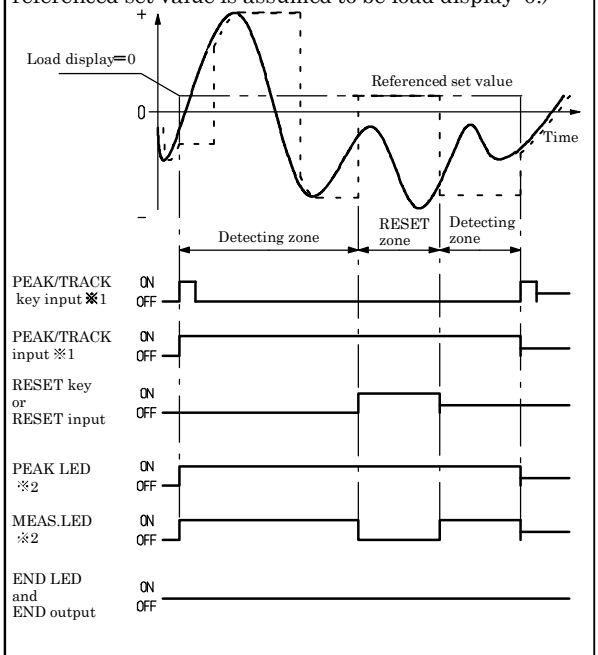
All zone peak hold : Hold the maximum value of load.



All zone bottom hold : Hold the minimum value of load.



All zone peak bottom hold
: The maximum (minimum) value of the difference between the referenced set value and the load is held from the trigger point. (During the detecting zone, the referenced set value is assumed to be load display=0.)



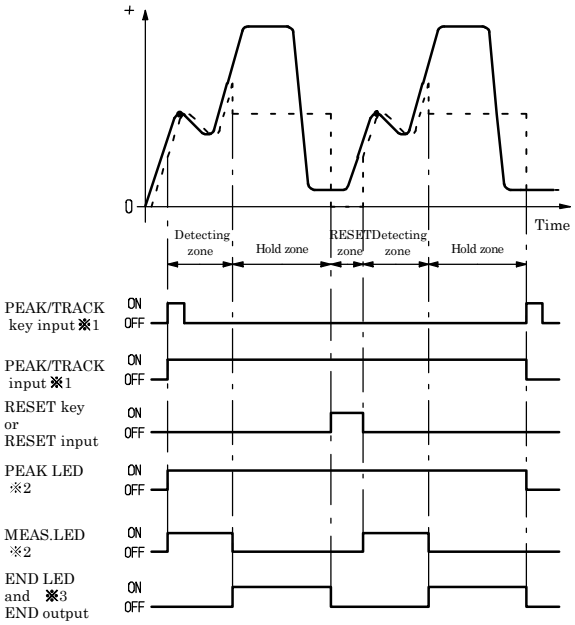
※1 Either of PEAK/TRACK key input or the PEAK /TRACK input one becomes effective.
The peak hold status does not change even if the PEAK/TRACK key is pushed at PEAK/TRACK input ON.

※2 The open collector output is made from S0 terminal interlocked with PEAK LED or MEAS.LED.
(Set by function)

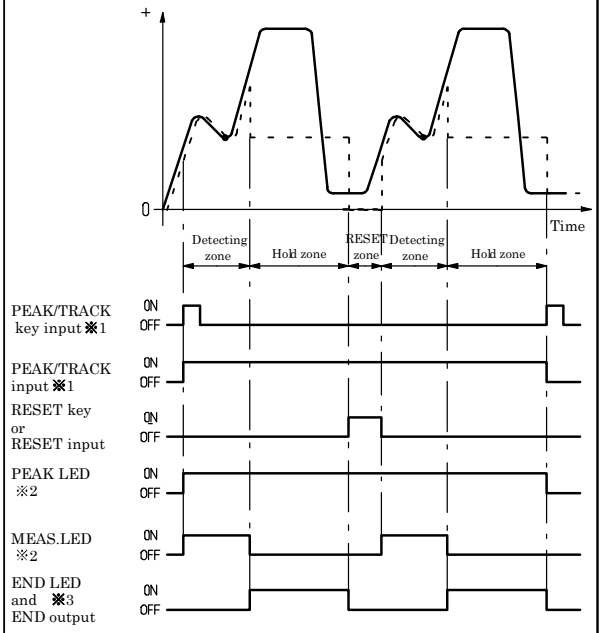
SPECIFICATIONS

——— Load
- - - - - - - Display of load

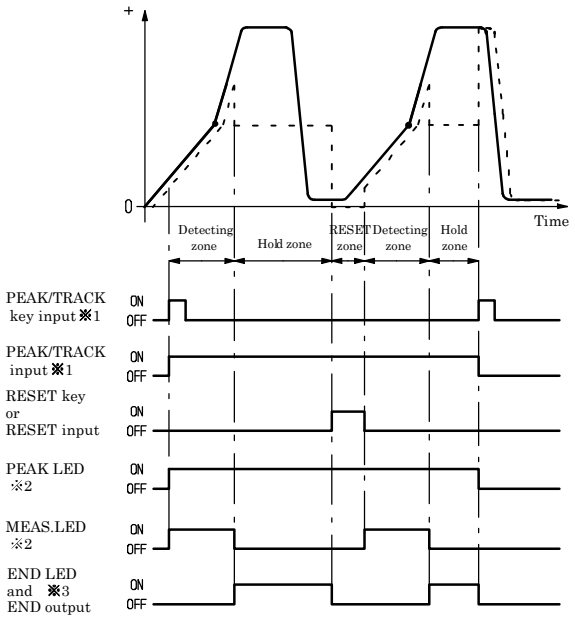
All zone maximum value hold: Hold the maximum load value.



All zone minimum value hold: Hold the minimum load value.



All zone inflection point hold
: Hold the value before there is a rapid change in load.



※1 Either of PEAK/TRACK key input or the PEAK/TRACK input one becomes effective. The peak hold status does not change even if the PEAK/TRACK key is pushed at PEAK/TRACK input ON.

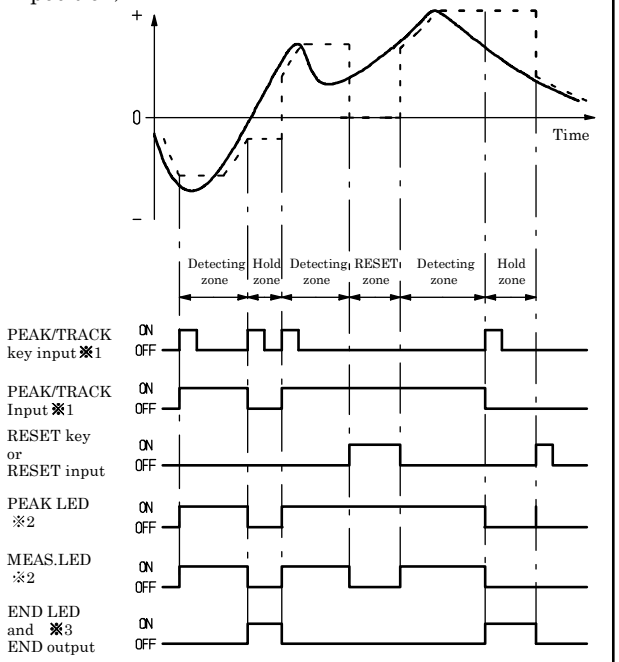
※2 The open collector output is made from S0 terminal interlocked with PEAK LED or MEAS.LED. (Set byfunction)

※3 The END output and END LED are turned on when the holding zone.

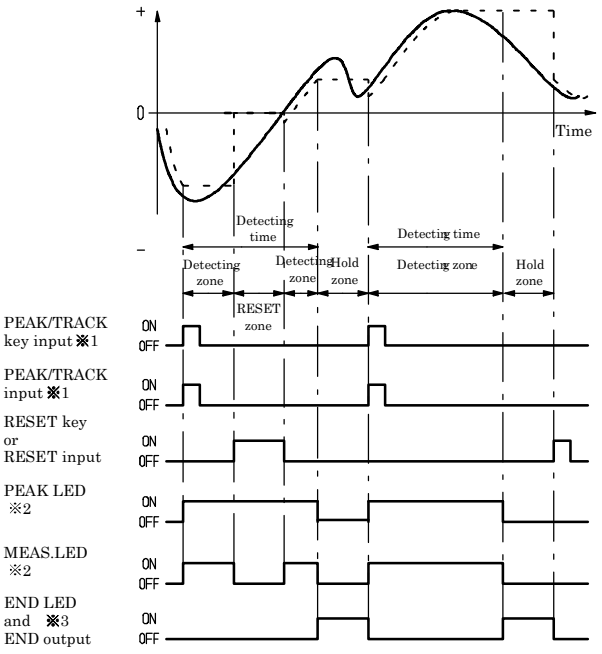
SPECIFICATIONS

——— Load
- - - - - - - Display of load

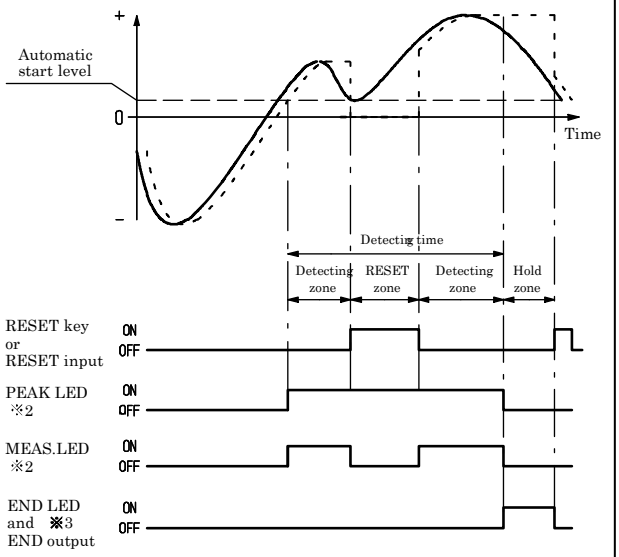
Specified zone hold
(Peak, Bottom, Peak– Bottom, Maximum value, Minimum value, Inflecting point)
：Detecting hold during the zone specified from external position)



Specified time zone hold
(Peak, Bottom, Peak/Bottom, Maximum value, Minimum value, Inflecting point)
：Detecting the hold during the detection time set from the trigger point.



Automatic start time specified zone hold
(Peak, Bottom, Peak/Bottom, Maximum value, Minimum value, Inflecting point)
：Detecting hold during detecting time set from when the load display value passed on the automatic start level.



※1 Either of PEAK/TRACK key input or the PEAK/TRACK input one becomes effective. The peak hold status does not change even if the PEAK/TRACK key is pushed at PEAK/TRACK input ON.

※2 The open collector output is made from S0 terminal interlocked with PEAK LED or MEAS.LED. (Set by function)

※3 The END output and END LED are turned on during the holding section.

SPECIFICATIONS

3. General specifications

- Operating temperature/humidity range
  - Temperature: 0 ℃ to 50 ℃
  - Humidity: Less than 85 %RH (Non condensing.)
- Used elevation: Under 2 000 m
- Pollution degree: Under 2
- Overvoltage category: Category Ⅱ
- Power supply
  - Power supply voltage: AC100 V to 240 V (Allowable variable range AC85 V to 264 V)
  - Power supply frequency: 50/60 Hz
  - Power consumption: Approx. 8 VA (Without option, at AC100 V)
    Approx. 17 VA at max. (With options, at AC100 V to AC240 V)
- Outline dimensions (W × H × D)
  96 mm × 96 mm × 129.5 mm (Excludes protruding parts.)
- Dustproof waterproof specification
  During the panel mount is installed, the front panel section becomes IP 65or equivalent.
  (When the attached panel mounting gasket is installed.)
- Weight: Approx. 500 g (Without any options.)

4. Standard specifications at the shipment

- Bridge power supply: DC10 V
- Span adjustment: ± 2 000 display at the input of ± 0.5 mV/V.
- The minimum scale: 1
- Analog output: 0 V to ± 10.000 V with 0 to ± 2 000 display.

5. Accessories

- Instruction manual: 1 piece
- Midget fuse: 1 piece (1A)
- Unit seal: 1 piece
- Panel mounting attachment
  2 pieces
- Panel mounting gasket: 1 piece
- BCD output plug: 1 piece (Attached only when optional BCD output is installed.)
- Instruction manual for voltage input model
  1 piece (Attached only when optional voltage input is installed.)

6. Options

6-1. Current output

- Parts No. CSD819C-P07
- Specifications

Output	DC4 mA to 20 mA Load resistance 260Ω or less
Non−linearity	0.025 %F.S.
Resolution	Same as display resolution
Over range	Approx.DC2.4 mA at "−OL" display, and approx.DC21.6 mA at "OL" display.
Output times	100 times/s、500 times/s、1 000 times/s、2 000 times/s (Synchronizes with the A/D sampling.) ※The voltage output cannot be done when this options is installed.

6-2. BCD output

- P/No. CSD819C−P15
- Specifications

Output	BCD 5 digits, parallel output with polarity applied (Output ON with minus, and output OFF with plus.), P.C. (Print command) Turning on during fixed time after conversion of BCD output is completed ERROR ON when the various error occurs. OVR(Over) ※Above are open collector outputs. V_{CE}=30 V , I_C=30 mA
Output times	Changeable to 4 times/s, 20 times/s, 50 times/s, 100 times/s or 200 times/s
Input	ZERO same asZERO key. ※Above is pulse input, effective only once with the pulse width 50 ms or more. (Pulse width is changeable to 1 ms, 2 ms, 5 ms, 10 ms or 20 ms.) PEAK/TRACK same as PEAK/TRACK key. RESET same as RESET key. HOLD Hold of display and BCD output. BCD−ENABLE Compulsion OFF of BCD relation output (High−impedance) ※Above is level input, effective during the input with short morethan 50 ms. (Level width is changeable to 1 ms, 2 ms, 5 ms, 10 ms or 20 ms.)

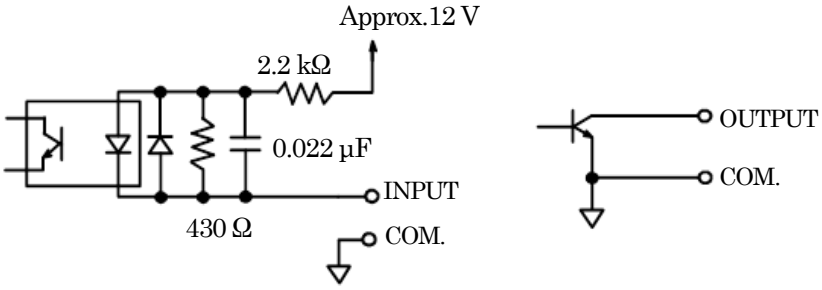
SPECIFICATIONS

• Connector pin configuration of BCD output Suitable plug : 57−30360 by DDK

1	COM.	13	8×10^2	25	ERROR
2	1×10^0	14	1×10^3	26	P.C.
3	2×10^0	15	2×10^3	27	HOLD
4	4×10^0	16	4×10^3	28	N.C.
5	8×10^0	17	8×10^3	29	SEL.1
6	1×10^1	18	1×10^4	30	SEL.2
7	2×10^1	19	COM.	31	ZERO
8	4×10^1	20	2×10^4	32	PEAK/TRACK
9	8×10^1	21	4×10^4	33	RESET
10	1×10^2	22	8×10^4	34	N.C.
11	2×10^2	23	POL.	35	BCD-ENABLE
12	4×10^2	24	OVR.	36	N.C.

※Don't connect with N.C. pin.
※An internal circuit and photocoupler are insulated.

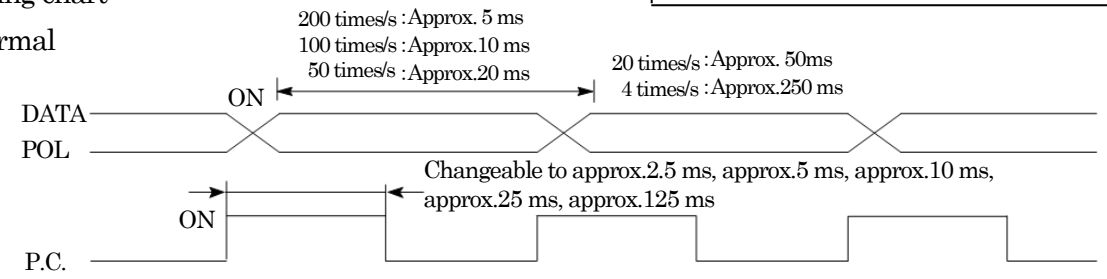
• Equivalent circuit of input/output section



SPECIFICATIONS

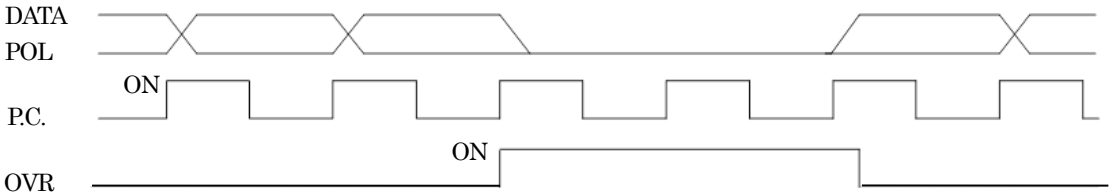
- Timing chart

① Normal



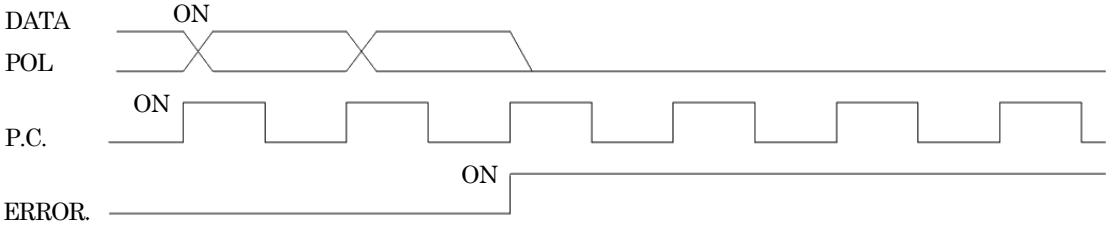
※Output transistor will be ON (Negative logic in electrical theory) when all of the P.C., DATA and POL output the data.

②When data is over



※Output transistor of OVR signal will become ON (Negative logic in electrical theory) during the output of OVR. Moreover, output transistor of all of the DATA, P.C. and POL will become OFF (Positive logic in electrical theory) during the output of OVR.

③When the error is occurred.

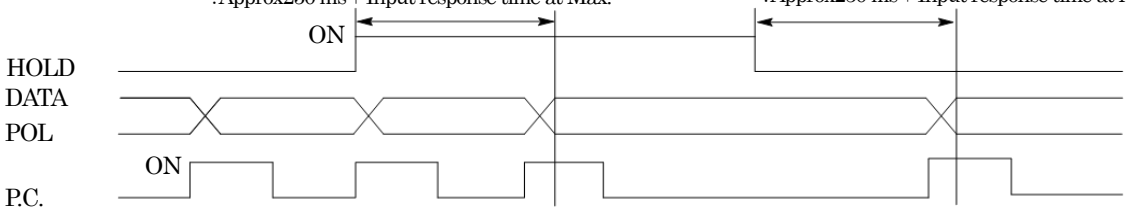


※Output transistor of ERROR signal will become ON (Negative logic in electrical theory) during the output of ERROR. Moreover, output transistor of all the P.C., DATA and POL will become OFF (Positive logic in electrical theory) during the output of ERROR.

④When the HOLD signal is input.

200 times/s :Approx. 5 ms+Input response time at Max.
100 times/s :Approx. 10 ms+Input response time at Max.
50 times/s :Approx. 20 ms+Input response time at Max.
20 times/s :Approx. 50 ms+Input response time at Max.
4 times/s :Approx250 ms+Input response time at Max.

200 times/s :Approx. 5 ms+Input response time at Max.
100 times/s :Approx. 10 ms+Input response time at Max.
50 times/s :Approx. 20 ms+Input response time at Max.
20 times/s :Approx. 50 ms+Input response time at Max.
4 times/s :Approx250 ms+Input response time at Max.



※Output transistor of P.C. becomes OFF (Positive logic in electrical theory) during input of HOLD signal.

※It will take as follows response time by the time of HOLD or release of DATA and POL after the HOLD signal is input. (The input response time is set by function.)

200 times/s :Approx. 5 ms+Input response time at Max.
100 times/s :Approx. 10 ms+Input response time at Max.
50 times/s :Approx. 20 ms+Input response time at Max.
20 times/s :Approx. 50 ms+Input response time at Max.
4 times/s :Approx250 ms+Input response time at Max.

SPECIFICATIONS

6-3. RS−232C Interface

- Parts No. CSD819C−P74
- 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
Synchronous method : Start−stop synchronous method
Communication data : ASCII code
Cable length : within 15 m
Input/output monitor with LED

- Connector pin configuration of RS−232C Suitable plug : DE−9S−NR by JAE or equivalent.

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

※Connector plug is not attached.

※The engagement fixation stand screw is inch screw.

※Don't connect with N.C. pin.

※An internal circuit is insulated by photocoupler.

- Function

①Reading out the load.
②Reading out the condition
(SEL.1, SEL.2, CHECK, HOLD, PEAK, MEAS., END)
③Changing the condition (ZERO, PEAK/TRACK, RESET)
④Reading out the comparator (S0, S1, S2, S3, S4)
⑤Changing the comparator (S0, S1, S2, S3, S4)
⑥Reading out the comparator judgement.
⑦Changing the function data of peak function section
⑧Changing the calibration data and comparator code
⑨Communication error code (error code as to the communication)

SPECIFICATIONS

6-4. RS−422/485 interface

- Parts No. CSD819C−P76
- 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
Synchronous method : Start−stop synchronous method
Address : Select one from 0 to 31
Communication data : ASCII code
Cable length : Approx.1 km
Connectable unit : 32 units at maximum (RS−422 : 10 units)
Termination : Internal
(Selects the presence by the terminal block connection.)
Input/output monitor with LED
Changeover the RS−422/485 : Set by function

- Terminal configuration of RS−422/485

Terminal name	Signal name
SDA	Differential output
SDB	Differential output
RDA	Differential input
RDB	Differential input
TRM.	Termination
S.G.	Signal ground

※An internal circuit is insulated by photocoupler.

- Function

①Reading out the load.
②Reading out the condition
(SEL.1, SEL.2, CHECK, HOLD, PEAK, MEAS., END)
③Changing the condition (ZERO, PEAK/TRACK, RESET)
④Reading out the comparator (S0, S1, S2, S3, S4)
⑤Changing the comparator(S0, S1, S2, S3, S4)
⑥Reading out the comparator judgement.
⑦Changing the function data of peak function section
⑧Changing the calibration data and comparator code
⑨Communication error code (error code as to the communication)

SPECIFICATIONS

6-5. Voltage input

- Parts No. CSD819C−P31
- Specifications

DC voltage input range	F.S. setting can be made at the input of ±1 V to ±10 V (Input resistance Approx.1 MΩ)
Non−linearity	0.05 %F.S.
Temperature coefficient	
Zero point	± 0.01 %F.S./℃
Sensitivity	± 0.01 %F.S./℃

- Standard specifications at the shipment from factory

Span adjustment	± 2 000 display at the input of ±1 V
Minimum scale	1
Analog output	0 to ± 10 000 V with 0 to ± 2 000 display

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

6-6. Optional combinations

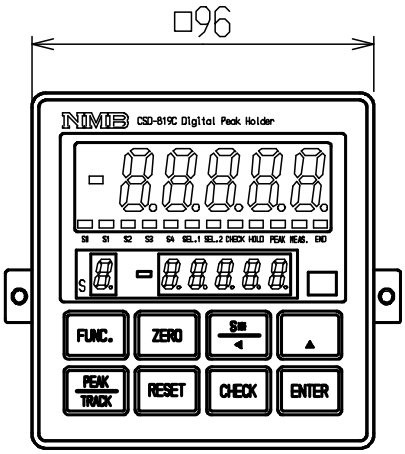
	P07	P15	P74	P76	P31
P07	−	○	○	○	○
P15	○	−	×	×	○
P74	○	×	−	×	○
P76	○	×	×	−	○
P31	○	○	○	○	−

○:Possible, ×:Impossible
P07:Current output
P15:BCD output
P74:RS−232C interface
P76:RS−422/485 interface
P31:Voltage input

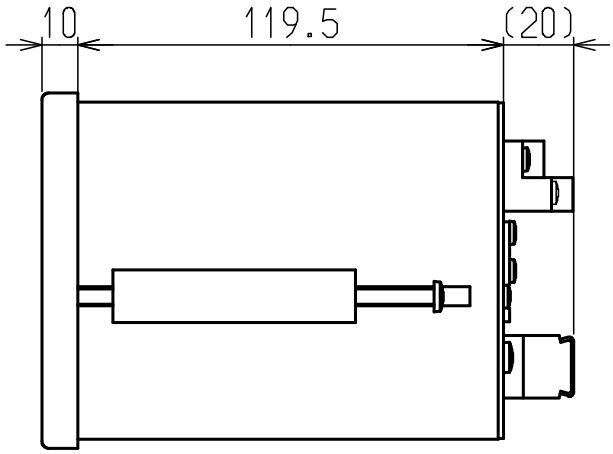
SPECIFICATIONS

7. Outline dimensions

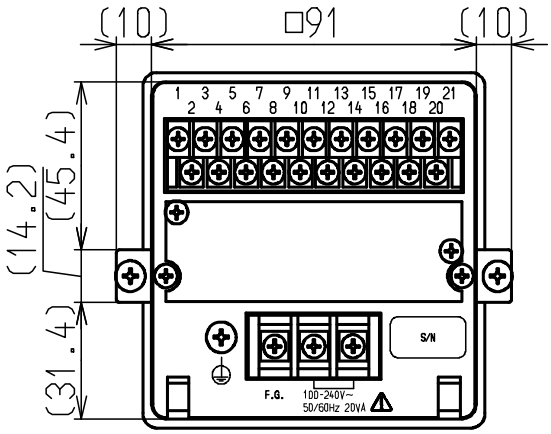
Front



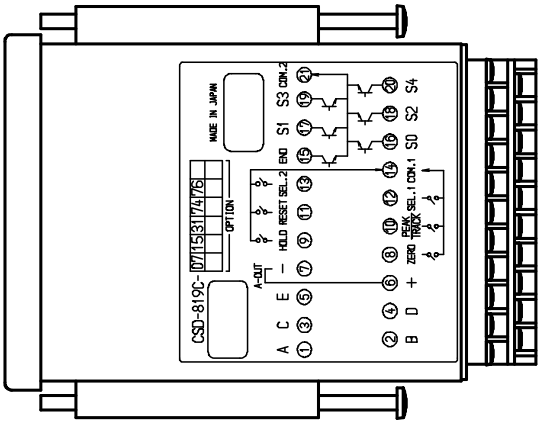
Side



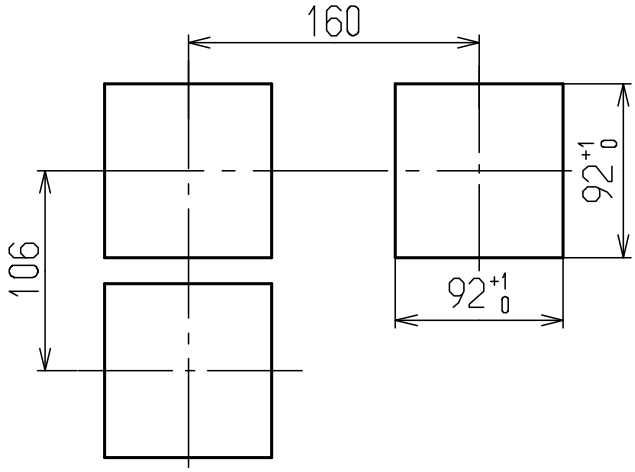
Rear



Upper



Panel cut size



Unit : mm

SPECIFICATIONS

8. CE 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"

EN61010−1:2010+A1:2019

"Safety requirements for electrical equipment for measurement, control and laboratory use − Part 1:General requirement"

RoHS compliant

The using condition to suit this standard is as follows.

8-1. Wiring

①Shield processing

- Cables other than power cable must use all shielded cables.
- Please connect all shielded cables with No.2 F.G. terminal of the terminal block.

②Grounding

- The ground of this instrument shall apply the individual ground by using the protective ground terminal

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