

FEATURES

- Multi-range input (T/C, RTD, mV, V, mA, Etc)
- High accuracy 16bit A/D converter
- Peak hold function (Highest & Lowest)
- RS-485 Communication interface
- 2, 4 points alarm & Dead band set
- Burnout function
- Isolation current output (DC 4.00~20.00mA) & Output scaling
- Sensor power source DC 24V in STD specification
- Free voltage (AC 85~265V, 45~65Hz)



SPECIFICATIONS

- ▶ Measuring and display cycle : 200ms(mV, Volt, mA type)
400ms(TC, RTD type)
- ▶ Input resistance : Volt-400k Ω
Others type-1M Ω
- ▶ Signal source resistance : Pt 100 Ω type-30 Ω /line
Others type-300 Ω /line
- ▶ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▶ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▶ Moving average filter
- ▶ Built-in sensor power source : DC 24V 30mA $\pm$ 0.5%
- ▶ Accuracy : $\pm$ 0.2% FS
- ▶ Isolation current output
(2 output is isolation between output)
Current : DC 4.00~20.00mA
Maximum load resistance : 600 Ω
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)
- ▶ Isolation voltage output(Optional)
Voltage : DC 0~10V
Minimum load resistance : 1k Ω
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)

▶ Alarm output(Alarm setter)

- Contact output type : Normal open, Normal close
- Max switching power : 60W 125VA
- Max switching voltage : DC 220V, AC 250V
- Max switching current : DC 2A, AC
- Max Carrying current : DC 3A, AC

▶ Ambient temperature & Humidity

- Operation : -10~50 $^{\circ}$ C, 10~90%
- Storage : -20~70 $^{\circ}$ C, 5~95%

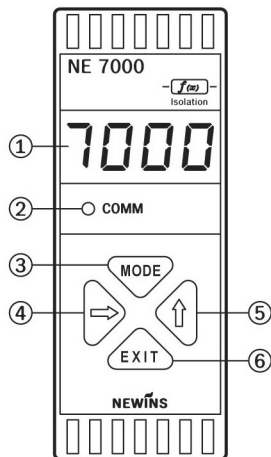
▶ Power supply

- Voltage : AC 85~265V(45~65Hz)
DC 24V(Optional)
- Power consumption : Max 4VA
- Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power,
Power-Input, Input-Output)

▶ Etc

- Weight : 200g
- Mounting : Din rail & wall mounted
- Dimension : 30.5(W) X 80(H) X 102(D)mm

PARTS NAME



- ① Measured value display
- ② Communication lamp
- ③ **MODE** Key :
Storage the set data and change the operation menu
- ④ **Enter** Key :
Enter into the data setting mode and modify the changed location
- ⑤ **Up** Key :
Change the data value
- ⑥ **EXIT** Key :
Out of mode

INPUT TYPE

Sensor Type	Range	Scale	Symbol
TC	B(PR)	0~1800℃	-
	R(PR)	0~1750℃	-
	S(PR)	0~1750℃	-
	K(CA)	-200~1350℃	-
	E(CRC)	-199.9~700.0℃	-
	J(IC)	-199.9~800.0℃	-
Volt	T(CC)	-199.9~400.0℃	-
	mV	-50.0~50.0mV	-1999~9999
	Volt	-1.000~1.000V	-1999~9999
mA	Volt	-10.0~10.0V	-1999~9999
	mA	4.00~20.00mA	-1999~9999
PT	Pt100Ω	-199.9~800.0℃	-
	JPt100Ω	-199.9~500.0℃	-
Pot	500	0~500Ω	-1999~9999
	5k	0~5kΩ	-1999~9999

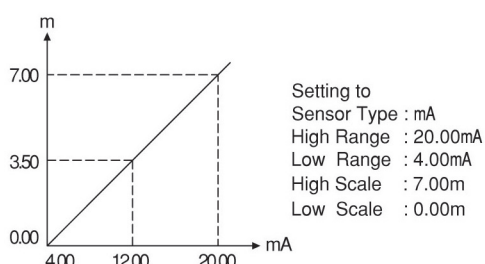
* mA input needs 250Ω(±0.1% 25ppm) resistance spiral on outside

MAJOR FUNCTIONS

Display scaling function(mV, Volt, mA only)

This function changes and sets the display value according to scale and input range.

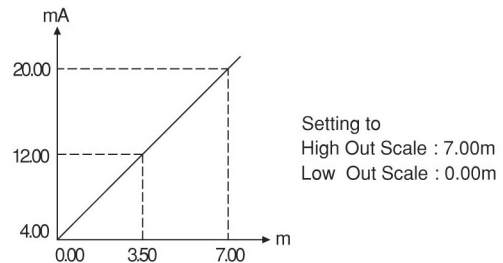
Ex) In case of input range 4.00~20.00mA and Level 0.00~7.00m



Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m,
Output 4.00~20.00mA



Function(mV, Volt, mA type)

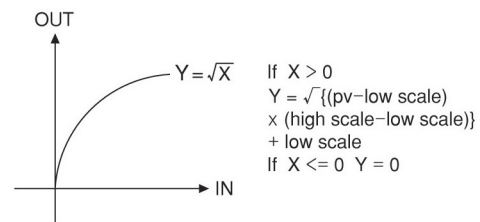
L in

Pass the input as it is.

Used for general input type and linearity input.

root

Pass the input after $\sqrt{\quad}$. Used for flow rate by orifice.



L in t

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

Alarm function

Alarm type : High, Low

The alarm consists of 2 relays, and it can output relay contact output individually

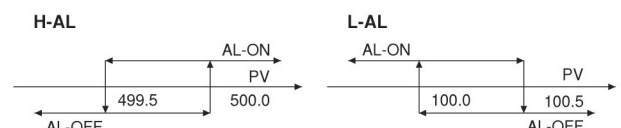
Ex) AL-1 : High alarm value 500.0,

AL-2 : Low alarm value 100.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The low alarm(AL-2) is OFF when the present value(PV) is 100.5 or more, and ON when 100.0 or less.



슬림형 변환기

SLIM TYPE ISOLATED CONVERTER(SOCKET)

▶ Sensor compensation function

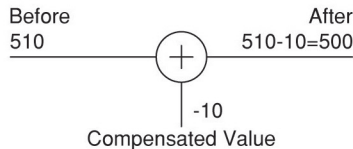
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510°C

After sensor adjust

= measured value + compensated value

= 510 - 10 = 500°C



▶ Peak hold function

Peak mode 0 High peak mode

Remember the highest input value and display the highest value when pressing the key.

Peak mode 1 Low peak mode

Remember the lowest input value and display the lowest value when pressing the key.

Peak mode 2 High peak & Display mode

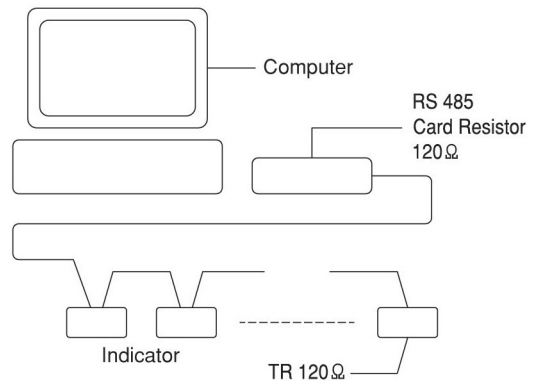
Remember the highest input value, display the highest value in ordinary times, and output the highest transmit output.

Peak mode 3 Low peak & Display mode

Remember the lowest input value, display the lowest value in ordinary times, and output the lowest transmit output.

▶ Communication interface

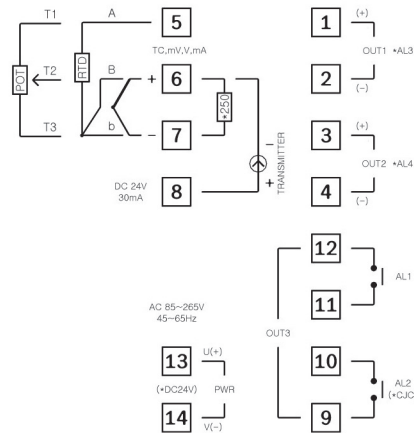
It is possible to communicate with computer and to monitor remote by using RS-485 communication interface.



ORDERING CODE

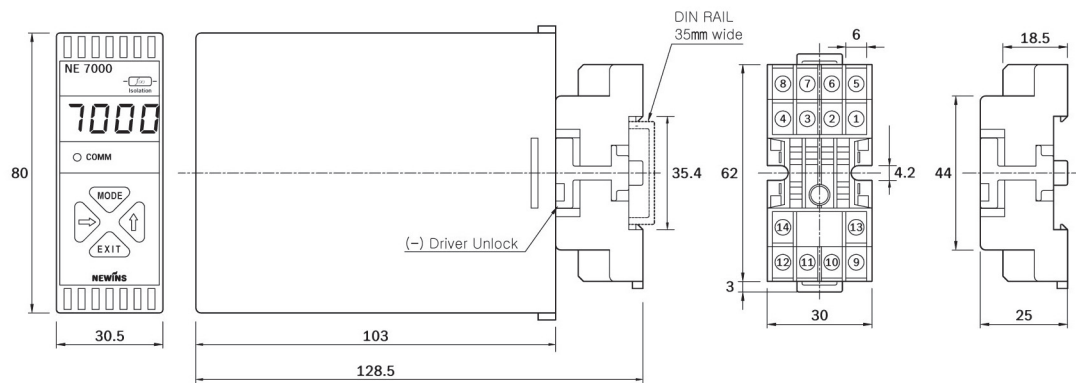
NE 70(*NE 73)		-	Description
Analog output	00		DC 4.00~20.00mA
	01		DC 4.00~20.00mA (2 Output)
	02		DC 1~5V
	03		DC 1~5V (2 Output)
	04		DC 0~10V
	05		DC 0~10V (2 Output)
	06		DC 4.00~20.00mA + 1Alarm
	07		DC 4.00~20.00mA + 2Alarm
	08		DC 1~5V + 1Alarm
	09		DC 1~5V + 2Alarm
	10		DC 4.00~20.00mA + RS-485
	11		DC 1~5V + RS-485
	12		Etc
Power		0	AC 85~265V (45~65Hz)
		1	DC 12~32V
		2	Etc

TERMINAL DIAGRAM



*NOTE
1. mA Input (+, -) Needs 250 OHM 0.05% 25ppm Resistance
2. *TC-TYPE CJC ONLY(AL2 NONE)

DIMENSION & PANEL CUT



* When mounting, no extra space is needed between units

FEATURES

- Multi-range input (T/C, RTD, Volt, mA, Etc)
- High accuracy 16bit A/D converter
- Peak hold function (Highest & Lowest)
- Burnout function
- RS-485 Communication interface
- 2, 4 points alarm & Dead band set
- Isolation current output (DC 4.00~20.00mA) & Output scaling
- Sensor power source DC 24V in STD specification
- Exit IN/OUT hold

SPECIFICATIONS

- ▶ Measuring and display cycle : 200ms(mV, Volt, mA type)
400ms(TC, RTD type)
- ▶ Input resistance : Volt-400k Ω
Others type-1M Ω
- ▶ Signal source resistance : Pt 100 Ω type-30 Ω /line
Others type-300 Ω /line
- ▶ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▶ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▶ Moving average filter
- ▶ Built-in Sensor power source : DC 24V 30mA $\pm$ 0.5%
- ▶ Accuracy : $\pm$ 0.2% FS
- ▶ Isolation current output
(2 output is isolation between output)
Current : DC 4.00~20.00mA
Maximum load resistance : 600 Ω
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)
- ▶ Isolation voltage output(Optional)
Voltage : DC 0~10V
Minimum load resistance : 1k Ω or more
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)

▶ Alarm output(Alarm setter)

- Contact output type : Normal open
- Max switching power : 60W 125VA
- Max switching voltage : DC 220V, AC 250V
- Max switching current : DC 2A, AC
- Max Carrying current : DC 3A, AC

▶ Ambient temperature & Humidity

- Operation : -10~50°C, 10~90%
- Storage : -20~70°C, 5~95%

▶ Power supply

- Voltage : AC 110/220V(50~60Hz)
DC 24V(Optional)
- Power consumption : Max 4VA
- Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power,
Power-Input, Input-Output)

▶ Communication interface(Optional)

- Type : RS-485
- Speed : 4800, 9600, 19200bps
- ID(address) setting : 0~15

▶ Etc

- Weight : 500g
- Mounting : Din rail & wall mounted
- Dimension : 50(W) X 80(H) X 102(D)mm



A

B

C

D

E

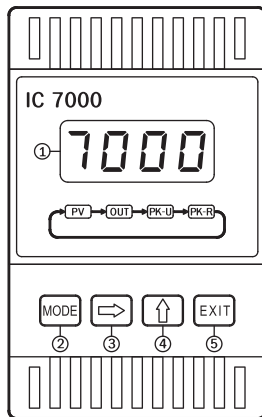
F

G

콘버터, 경보계

ISOLATED CONVERTERS WITH ALARM

PART NAME



- ① Measured value display
- ② MODE Key :
Storage the set data and change the operation menu
- ③ Key :
Enter into the data setting mode and modify the changed location
- ④ Key :
Change the data value
- ⑤ EXIT Key : Out of mode

INPUT TYPE

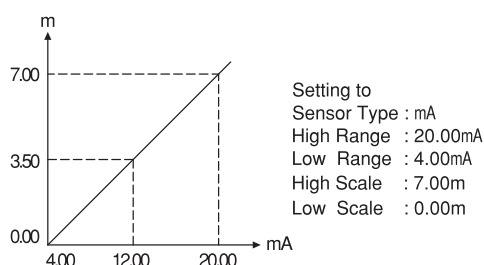
Sensor Type	Range	Scale	Symbol
TC	R(PR 13%)	0~1750℃	-
	K(CA)	-200~1350℃	-
	E(CRC)	-199.9~700.0℃	-
	J(IC)	-199.9~800.0℃	-
	T(CC)	-199.9~400.0℃	-
Volt	mV	-100.0~100.0mV	-1999~9999
	Volt	-10.0~10.0V	-1999~9999
mA	mA	4.00~20.00mA	-1999~9999
PT	Pt100Ω	-199.9~800.0℃	-
	JPt100Ω	-199.9~500.0℃	-

MAJOR FUNCTIONS

► Display scaling function(mV, Volt, mA only)

This Function changes and sets the display value according to scale and input range.

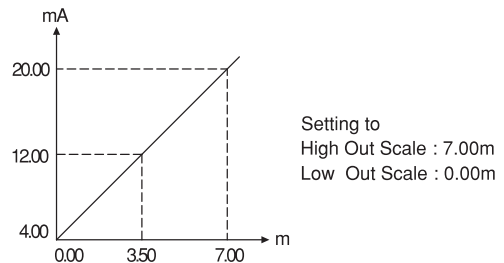
Ex) In case of input range 4.00~20.00mA and Level 0.00~7.00m



► Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m,
Output 4.00~20.00mA



► Function(mV, Volt, mA type)

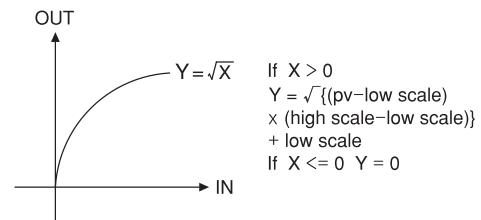
L **in**

Pass the input as it is.

Used for general input type and linearity input.

r o o t

Pass the input after $\sqrt{\quad}$. Used for flow rate by orifice.



L **in** **t**

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

► Alarm function

Alarm type : High, Low

The alarm consists of 2 relays, and it can output relay contact output individually

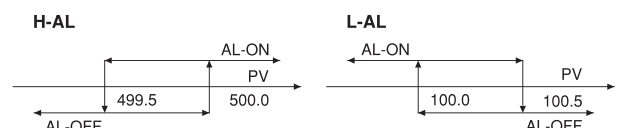
Ex) AL-1 : High alarm value 500.0,

AL-2 : Low alarm value 100.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The low alarm(AL-2) is OFF when the present value(PV) is 100.5 or more, and ON when 100.0 or less.



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ISOLATED CONVERTERS WITH ALARM

Sensor compensation function

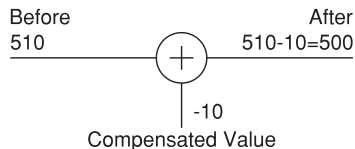
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510℃

After sensor adjust

= measured value + compensated value

= 510 - 10 = 500℃



Peak mode 2 High peak & Display mode

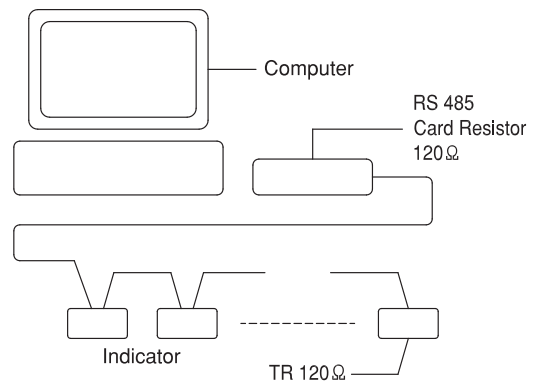
Remember the highest input value, display the highest value in ordinary times, and output the highest transmit output.

Peak mode 3 Low peak & Display mode

Remember the lowest input value, display the lowest value in ordinary times, and output the lowest transmit output.

Communication interface

It is possible to communicate with computer and to monitor remote by using RS-485 communication interface.



Peak hold function

Peak mode 0 High peak mode

Remember the highest input value and display the highest value when pressing the key.

Peak mode 1 Low peak mode

Remember the lowest input value and display the lowest value when pressing the key.

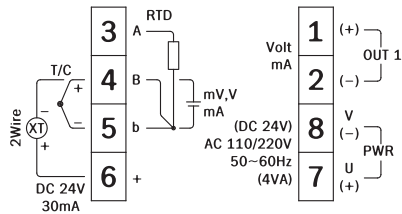
ORDERING CODE

IC 71		Description
Analog output	0	Isolation current Single output (DC 4.00~20.00mA)
	1	Isolation current Double output (DC 4.00~20.00mA)
	2	Isolation voltage Single output (0~10V)
	3	Isolation voltage Double output (0~10V)
	4	Exit IN/OUT Hold
	5	RS-485(422)
	6	Isolation current Three output (DC 4.00~20.00mA)
	7	Etc
Power	0	AC 85~265V(45~65Hz)
	1	DC 24V

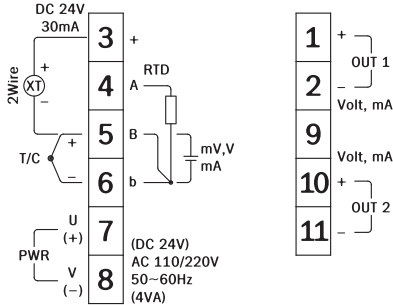
IC 72		Description
Analog output	0	Isolation current 1 output (DC 4.00~20.00mA) + Alarm 1 output
	1	Isolation voltage single output (0~10V) + Alarm 1 output
	2	Etc(Consult to the factory)
	3	alarm relay contact - 2AL
	4	alarm relay contact - 4AL
Power	0	AC 110/220V
	1	DC 24V

TERMINAL DIAGRAM

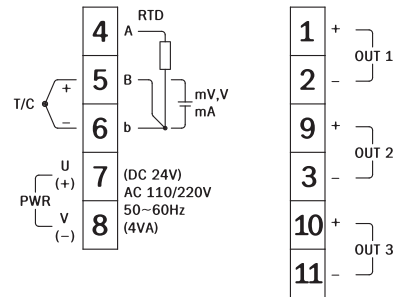
* 1 Output



* 2 Output

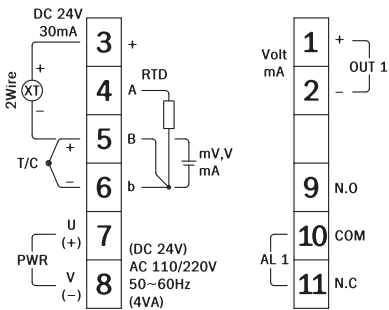


* 3 Output(mA only)

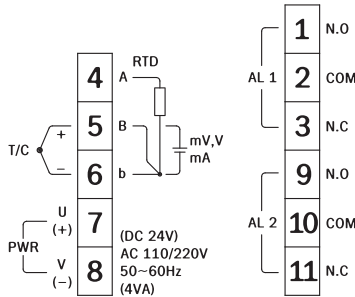


* mA Input(+ -) Needs 250 OHM 0.05% 25ppm Resistance
* Peak/Hold function needs dry contact input on pin 3 and 6

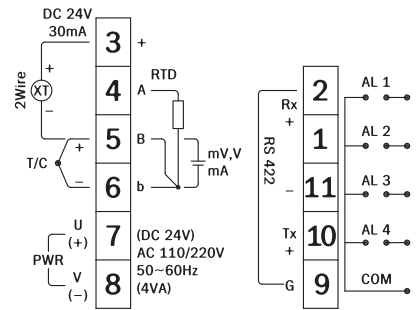
* mA(Volt) + 1 Alarm



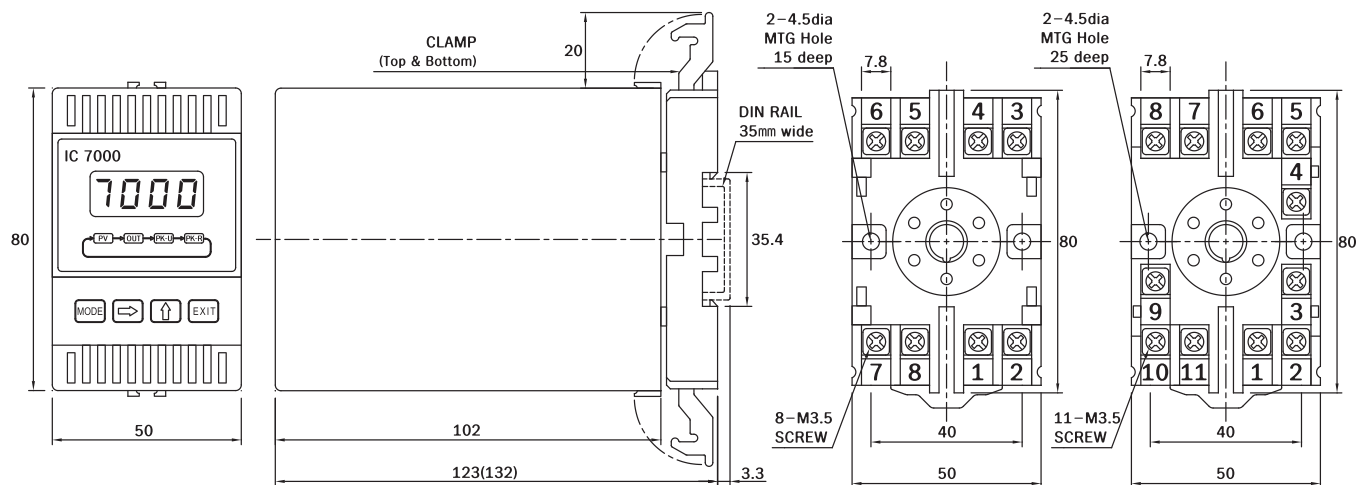
* 2 Alarm(only)



* 4 Alarm & 1mA(Volt) + RS 485(422)



DIMENSIONS & PANEL CUT



FEATURES

- Multi-range input T/C, RTD, mV, V, mA, POT, Etc
- Display off function (Power saving)
- High accuracy 16bit A/D converter
- Peak hold function (Highest & Lowest)
- RS-485 Communication interface
- 2points alarm & Dead band set
- Display input error
- Burnout function (Output High/Low selection)
- Sensor power source DC 24V in STD specification
- Free voltage (AC 85~265V, 45~65Hz)
- Isolation current output & Output scaling

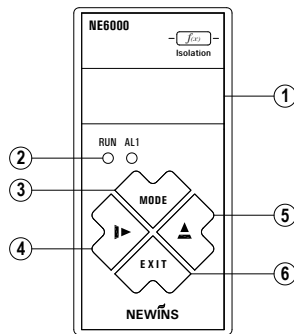


30(W) X 62(H) X 60(D)

SPECIFICATIONS

- ▶ **Measuring and display cycle :**
200ms(mV, Volt, mA type)
400ms(TC, RTD type)
- ▶ **Input resistance :** Volt-400k Ω
Others type-1M Ω
- ▶ **Signal source resistance :** Pt 100 Ω type-30 Ω /line
Others type-300 Ω /line
- ▶ **CMRR(Common Mode Rejection Ratio) :** 140dB or more
- ▶ **NMRR(Normal Mode Rejection Ratio) :** 60dB or more
- ▶ **Moving average filter**
- ▶ **Built-in sensor power source :** DC 24V 30mA $\pm$ 0.5%
- ▶ **Accuracy :** $\pm$ 0.2% FS
- ▶ **Isolation current output**
(2 output is isolation between output)
Current : DC 4.00~20.00mA
Maximum load resistance : 600 Ω
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)
- ▶ **Isolation voltage output(Option)**
Voltage : DC 0~10V
Minimum load resistance : 1k Ω
Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)
- ▶ **Alarm output(Alarm setter)**
Contact output type : Normal open, Normal close
Max switching power : 60W 125VA
Max switching voltage : DC 220V, AC 250V
Max switching current : DC 2A, AC
Max Carrying current : DC 3A, AC
- ▶ **Ambient temperature & Humidity**
Operation : -20~60 $^{\circ}$ C, 10~90%
Storage : -20~60 $^{\circ}$ C, 10~90%
- ▶ **Power supply**
Voltage : AC 85~265V(45~65Hz)
DC 24V(Option)
Power consumption : Max 4VA
Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power, Power-Input, Input-Output)
- ▶ **Etc**
Weight : 130g
Mounting : Din rail & wall mounted
Dimension : 30(W) x 62(H) x 60(D)mm

PARTS NAME



- ① Measured value display
- ② Communication lamp
- ③ **MODE** Key :
Storage the set data and change the operation menu
- ④ **→** Key :
Enter into the data setting mode and modify the changed location
- ⑤ **↑** Key :
Change the data value
- ⑥ **EXIT** Key :
Out of mode

INPUT TYPE

Sensor Type	Range	Scale	Symbol
TC	B(PR)	0 ~ 1800℃	-
	R(PR)	0 ~ 1750℃	-
	S(PR)	0 ~ 1750℃	-
	K(CA)	-200 ~ 1350℃	-
	E(CRC)	-199.9 ~ 700.0℃	-
	J(IC)	-199.9 ~ 800.0℃	-
Volt	T(CC)	-199.9 ~ 400.0℃	-
	mV	-50.0 ~ 50.0mV	-1999 ~ 9999
	Volt	-1.000 ~ 1.000V	-1999 ~ 9999
mA	Volt	-10.0 ~ 10.0V	-1999 ~ 9999
	mA	4.00 ~ 20.00mA	-1999 ~ 9999
PT	Pt100Ω	-199.9 ~ 800.0℃	-
	JPt100Ω	-199.9 ~ 500.0℃	-
POT	Potention meter 1k	0 ~ 1KΩ(2kΩ)	-1999 ~ 9999
	Potention meter 5k	0 ~ 5KΩ(10kΩ)	-1999 ~ 9999

* mA input needs 250Ω(±0.1% 25ppm) resistance spiral on outside

MAJOR FUNCTIONS

► Power-saving function

LED

If set to ON, FND disappears after 30 minutes, and LED will be blink.

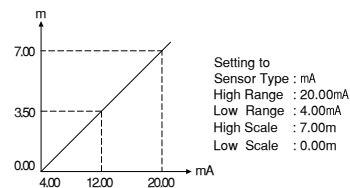
► Error message display function

- HHou** High Range over
LLou Low Range over
ErA1 RTD "A" open
ErB2 RTD "B" open, TC input open
ErB3 RTD "b" open
ErE CJC error

► Display scaling function(mV, Volt, mA only)

This function changes and sets the display value according to scale and input range.

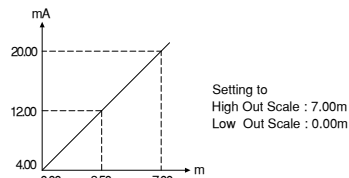
Ex) In case of input range 4.00 ~ 20.00mA and Level 0.00 ~ 7.00m



► Output scaling function

This function can change the 4.00 ~ 20.00mA value as the output scale.

Ex) In case of display value 0.00 ~ 7.00m,
Output 4.00 ~ 20.00mA



► Function(mV, Volt, mA type)

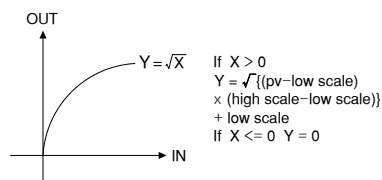
L in

Pass the input as it is.

Used for general input type and linearity input.

root

Pass the input after $\sqrt{\quad}$. Used for flow rate by orifice.



L inE

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

► Filter Function

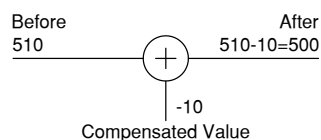
Filter number can select to 10~70. Filter is average for data excluded from a max/min value during a selected number of input data received.

► Sensor compensation function

The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510℃

After = measured value + compensated value
 = 510 - 10
 = 500℃



► Peak hold function

Peak mode 0 High peak mode

Remember the highest input value and display the highest value when pressing the key.

Peak mode 1 Low peak mode

Remember the lowest input value and display the lowest value when pressing the key.

Peak mode 2 High peak & Display mode

Remember the highest input value, display the highest value in ordinary times, and output the highest transmit output.

Peak mode 3 Low peak & Display mode

Remember the lowest input value, display the lowest value in ordinary times, and output the lowest transmit output.

► Analog output Function

If input sensor is opened, analog output is outputted to max/min value.

High : 20.000mA , Low : 4.000mA

► Alarm function

Alarm type : High, Low, Middle.

The alarm consists of 2 relays, and it can output relay contact output individually

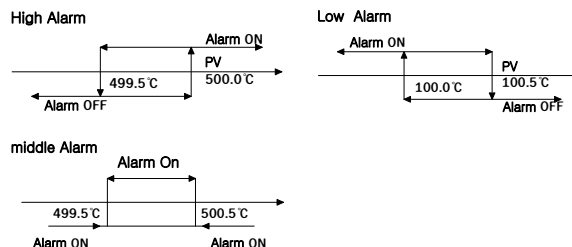
Ex) AL-1 : High alarm value 500.0,

AL-2 : Low alarm value 100.0,

AL-3 : Middle alarm value 500.0

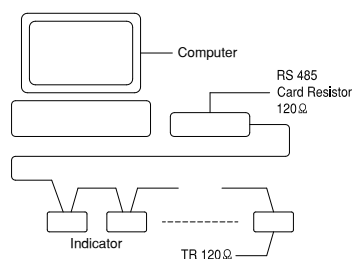
Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less. The low alarm(AL-2) is OFF when the present value(PV) is 100.5 or more, and ON when 100.0 or less.



► Communication interface

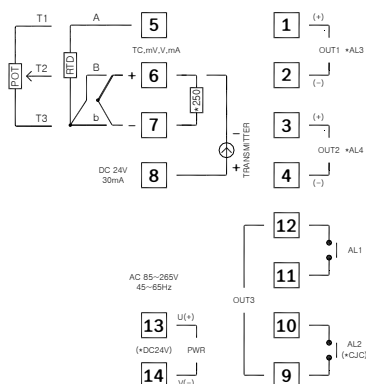
It is possible to communicate with computer and to monitor remote by using RS-485 communication interface.



ORDERING CODE

NE60		-	Description
Analog output	00		DC 4.00~20.00mA
	01		DC 4.00~20.00mA (2 Out)
	02		1~5 Volt
	03		1~5 Volt(2 Out)
	04		0~10 Volt
	05		0~10 Volt (2 Out)
	06		4.00~20.00mA + 1 Alarm
	07		1~5 Volt + 1 Alarm
	08		4.00~20.00mA + RS 485(RTU)
	09		1~5 Volt + RS 485(RTU)
	10		4.00~20.00mA + 1 Alarm + RS485(RTU)
	11		1~5 Volt + 1 Alarm + RS 485(RTU)
	12		Etc
Power			0 AC 85~265V(45~65Hz)
			1 DC 12~32V
			2 Etc

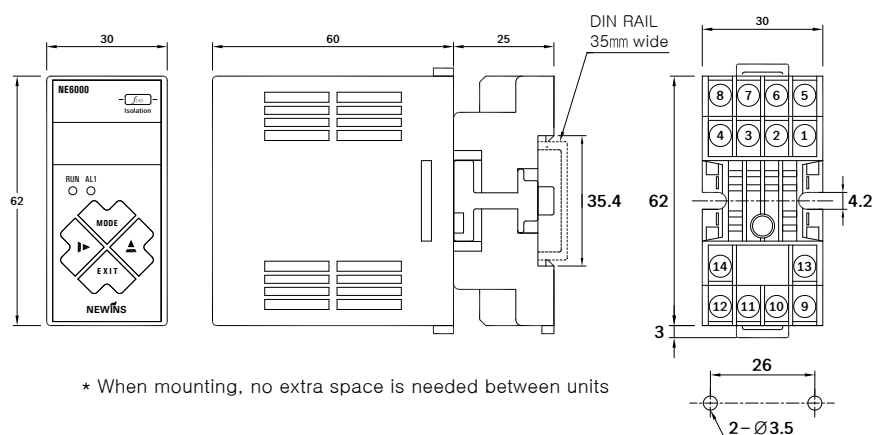
TERMINAL DIAGRAM



*NOTE
1.mA Input (+,-)Needs 250 OHM 0.05% 25ppm Resistance
2.*TC-TYPE CJC ONLY(AL2 NONE)

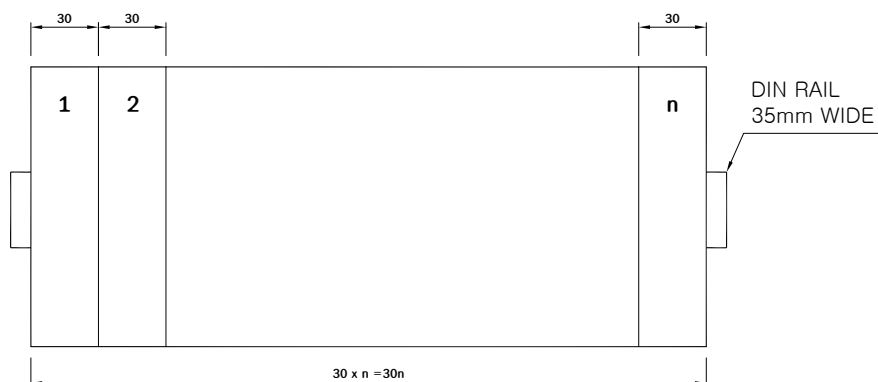
DIMENSION

▶ **Single Mounting** (unit:mm)



► **Multi Mounting** (unit:mm)

※ To avoid a shock between the home and the home oh the socket, insert the adhesion



FEATURES

- **Multi input** (Pulse voltage, Contact, Open collector, DC 4.00~20.00mA)
- **High response**
- **Peak hold function** (Highest & Lowest)
- **Pulse output** (O.C, Contact, Pulse voltage)
- **1 point alarm & Dead band set**
- **Isolation current output** (DC 4.00~20.00mA)
- **Sensor power source DC 12V**
in STD specification (* DC 24V Option)



SPECIFICATIONS

▷ **mA input** : DC 4.00~20.00mA

▷ **Pulse input**

Low level voltage : DC 0.7V or less
High level voltage : DC 1.5V or more
Max high voltage : DC 30V
Input resistance : 150kΩ

Range Code	Input	Minimum setting range
Range 0	4.00~20.00mA	-
Range 1	0.000~1.000Hz	0.100Hz
Range 2	0.000~9.999Hz	1.00Hz
Range 3	0.00~99.99Hz	10.0Hz
Range 4	0.0~999.9Hz	100Hz
Range 5	0.0000~9.999kHz	1.000Hz
Range 6	0.00~40.00kHz	10.00kHz

* Others is order made

▷ **Measuring and display cycle** : Minimum 1s.
more short according to input frequency

▷ **CMRR(Common Mode Rejection Ratio)** : 140dB or more

▷ **NMRR(Normal Mode Rejection Ratio)** : 60dB or more

▷ **Moving average filter by selection** :

None, Average 4, Average 8, Average 16,
Average 32

▷ **Built-in sensor power source** : DC 12V 30mA ±0.5%

▷ **Accuracy** : ±0.2% FS

▷ **Isolation current output(Optional)**

Current : DC 4.00~20.00mA

Maximum load resistance : 600Ω

Insolation resistance(Input-Output) : 100MΩ or more(DC 500V)

▷ **Isolation voltage output(Optional)**

Voltage : DC 0~10V

Minimum load resistance : 1kΩ or more

Insolation resistance(Input-Output) : 100MΩ or more(DC 500V)

▷ **Pulse output**

Open collector output : Max 100Hz, DC 50V/within 30mA

Voltage output : Max 100Hz, Lo(DC 0V), Hi(DC 24V)

Relay contact output : Max 5Hz same as alarm

▷ **Alarm Output**

Contact output type : Normal open, Normal close

Max switching power : 60W 125VA

Max switching voltage : DC 220V, AC 250V

Max switching current : DC 2A, AC

Max Carrying current : DC 3A, AC

▷ **Ambient temperature & Humidity**

Operation : -10~50℃, 10~90%

Storage : -20~70℃, 5~95%

▷ **Power supply**

Voltage : AC 110/220V(50~60Hz) by S/W
DC 24V(Optional)

Power consumption : Max 4VA

Isolation resistance : 100MΩ, DC 500V

(FG-Input, FG-Power,
Power-Input, Input-Output)

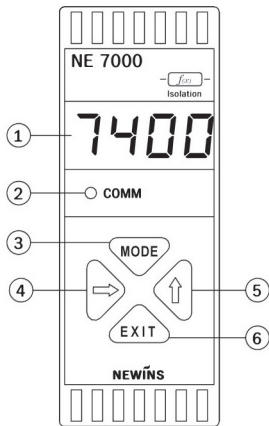
▷ **Etc**

Weight : 500g

Mounting : Din rail & wall mounted

Dimension : 50(W) X 80(H) X 102(D)mm

PARTS NAME



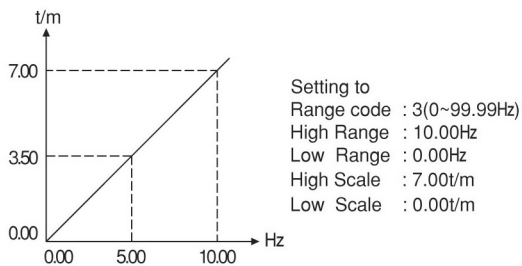
- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **MODE** Key :
Enter into the data setting mode and modify the changed location
- ④ **MODE** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

MAJOR FUNCTIONS

Display scaling function(mV, Volt, mA only)

This function changes and sets the display value according to scale and input range.

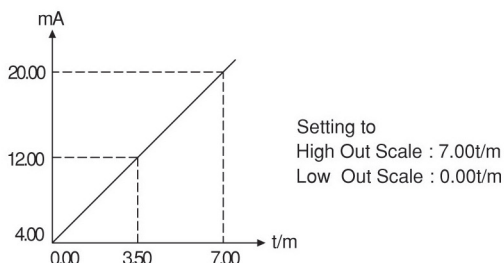
Ex) In case of input range 0.00~10.00Hz and Level 0.00~7.00t/m



Current output scaling function

This function is that 4.00~20.00mA output value is changed by output scale.

Ex) In case of display value 0.00~7.00t/m, Output 4.00~20.00mA



Pulse output scaling function

If input is mA(Range 0), it sets pulse number per hour when full scale(20mA).

Ex) Setting 3600, it outputs 3600 pulse a hour(1 pulse a second) when 20mA current inputs. If input is pulse (Range : 1~6), it sets a rate of input versus output.

Ex) Setting 100, It output 1 pulse when 100 pulse inputs.

Sensor compensation function

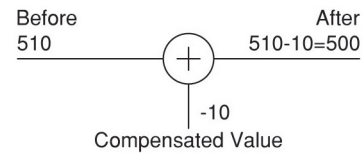
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510°C

After sensor adjust

= measured value + compensated value

= 510 - 10 = 500°C



Function(Volt, mA type only)

L in

Pass the input as it is.

Used for general input type and linearity input.

root

Pass the input after $\sqrt{\quad}$. Used for flow rate by orifice.

L in t

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

Alarm function

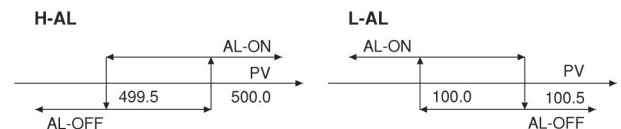
Alarm type : High, Low

Ex) AL-1 : High alarm value 500.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The high alarm(AL-2) is OFF when the present value (PV) is 100.5 or more, and ON when 100.0 or less.



Filter function

Filter is moving average filter and it has 4 kinds of function.

none

It displays the change of input without filter.

AV 4, 8, 16, 32

It displays in recent input No 4,8,16 sample average.

Setting filter function delays response.

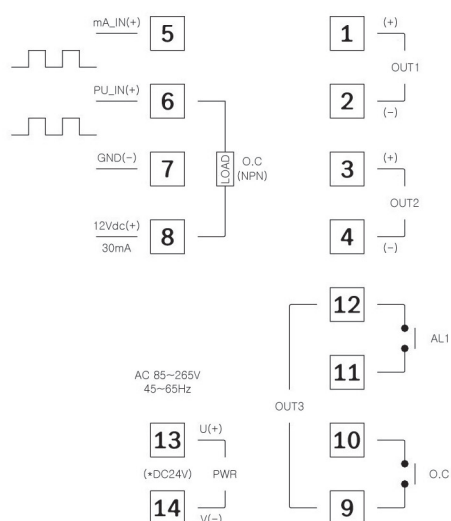
Do not use filter when high speed response is needed.

When output and display value are changed by irregular input, it is possible to get regular input and display value by using filter function.

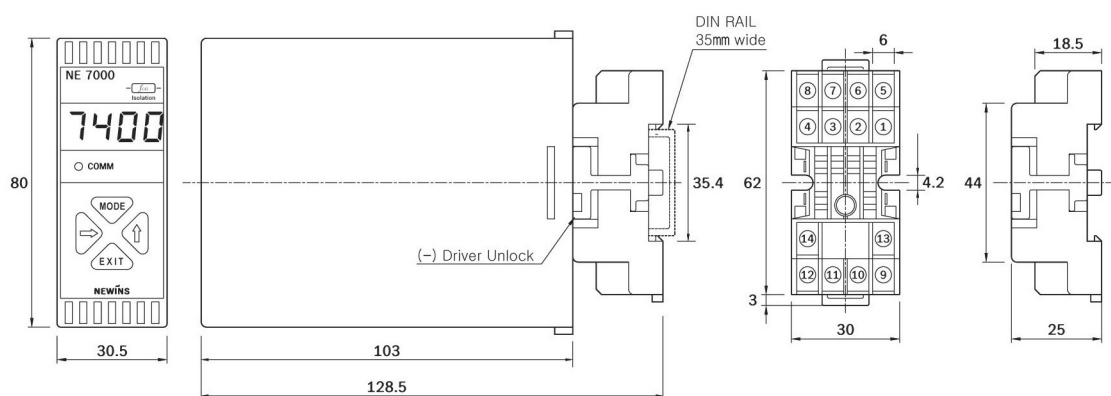
ORDERING CODE

NE 74			-			Description
Input	0 1					Pulse input DC 4.00~20.00mA input
Analog output	0 1 2 3 4 5					DC 4.00~20.00mA DC 4.00~20.00mA + Relay Contact DC 4.00~20.00mA + OC pulse output DC 4.00~20.00mA + Voltage pulse output DC 4.00~20.00mA + Relay Contact pulse output Etc
Power		0 1				AC 85~265V (45~65Hz) DC 24V (Option)
Interface			0 1 2			None RS-485 Etc

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



* When mounting, no extra space is needed between units

FEATURES

- 4Digit(48x96) panel mounting
- Single phase 2wire system
- RS485/modbus-RTU
- 2point Alarm (selectable W,V,A)
- Transfer output from 4.00 to 20.00mA (selectable W,V,A)
- Input up to 500V AC, 5A



SPECIFICATIONS

▷ Voltage Input

Rated voltage : 0~500V AC

Line-to-line (delta voltage) : 500V(single-phase/2wire)

Consumption VA : $\leq$ ULN2 / 270k Ω / phase

Overload capacity : 200% of rating for 10sec.
120% continuous.

▷ Current Input

Rated current : 0~5A AC

Consumption VA : $\leq$ I20.01 / phase

Overload capacity : 4000% of rating for 1sec.
2000% for 4sec.
120% continuous

Selectable primary current range : 1~99.9A

▷ Operational range

Voltage, current, apparent power : $\leq$ 120% of the rating

Reactive power : 120% of the rating

Frequency : 45-65Hz

Power factor : 0.000~1.000

▷ Temperature

Input : RTD(PT100 Ω at 0 $^{\circ}$ C)

Scale : -10 $^{\circ}$ C ~ 140 $^{\circ}$ C

Alarm : H/L selectable

▷ Power Supply

AC : Operational voltage range 85~264V AC
50~60Hz;<6VA

DC : Operational voltage range 99~264V,
ripple 10% p-p max.;<3W

Operating temperature : -10 to +55 $^{\circ}$ C

Operating humidity : 30 to 90%RH (non-considering)

Mounting : panel mounting

Weight : 320g

▷ DC Current : 4~20mA DC

Load resistance : $\leq$ 600 Ω

Measureands converted into analog output :

Voltage, Current, Active apparent power

Measureands applicable to alarm :

Voltage, current, power, temp

▷ Accuracy

(at 23 $^{\circ}$ C $\pm$ 10 $^{\circ}$ C or 45-65Hz)

▷ Voltage : $\pm$ 0.5% ($\pm$ 0.2% for option/H)

▷ Current : $\pm$ 0.5% ($\pm$ 0.2% for option/H)

▷ Power : $\pm$ 0.5%

▷ Harmonic contents : $\pm$ 1%

▷ Analog output : Accuracy of assigned measurand or $\pm$ 0.2%, whichever is greater.

In percentage of the spans : 480V for voltage, 5A or current, 4155W for active power.

▷ Response time : $\leq$ 2sec.(0-99%)

$\leq$ 3sec. for frequency and harmonic contents

▷ Sampling time :

harmonic contents frequency : $\leq$ 1.1sec.

Other : $\leq$ 600msec.

▷ Insulation resistance : $\geq$ 100M Ω with 500V DC

Voltage input to current input to distance to network interface or configurator jack of analog output to power

▷ Dielectric strength :

4000V AD @ 1minute (voltage input or current discrete input or discrete output or network interface or configurator jack or analog output to power)

2500V AC @ 1minute

(voltage input or current discrete input or discrete output or network interface or configurator jack or analog output)

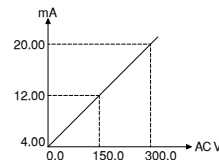
MAJOR FUNCTIONS

- Display current function(CT-n)

CT (Current Transformer)		CT-n (Number of revolutions)	Power Factor=1 ACV × I
Primary(A)	Secondary(B)		
5A	5(A)	1.0	220V×5=1.10kW
⋮		⋮	⋮
25		5.0	220V×25=5.50kW
50		10.0	220V×50=11.00kW
75		15.0	220V×75=16.50kW
100(A)		20.0	220V×100=22.00kW

► **Output scaling function (V, A, W)**

ex) In case of display value AC 0.0 to 300.0V



The diagram shows the front of the NE 8000 remote control. It has a digital display showing '8000'. Below the display is a 'COMM' indicator light. The control buttons are arranged in a diamond shape: 'MODE' at the top, 'EXIT' at the bottom, a left arrow on the left, and an up arrow on the right. The brand name 'newfins' is at the bottom. Numbered callouts point to: 1. The digital display; 2. The 'COMM' indicator; 3. The 'MODE' button; 4. The left arrow button; 5. The up arrow button; 6. The 'EXIT' button.

- ① Measured value display
- ②  Key :
Storage the set data and change the operation menu
- ③  Key :
Enter into the data setting mode and modify the changed location
- ④  Key :
Change the data value
- ⑤  Key : Out of mode

```

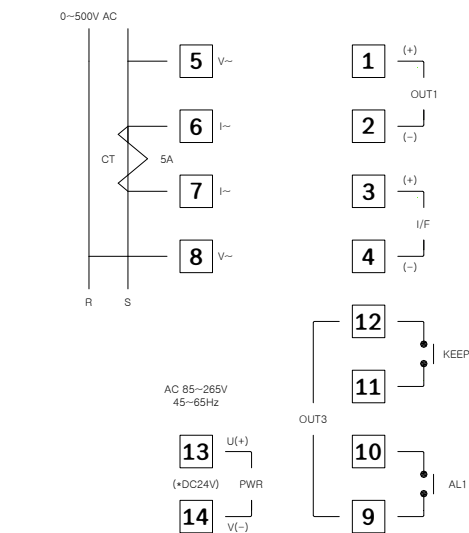
graph TD
    PV1[PV] --> MODE1[MODE]
    MODE1 --> dSP[dSP (W, V, A, PF, TEMP, AUTO)]
    dSP --> MODE2[MODE]
    MODE2 --> AL1[AL-1 1000]
    AL1 --> MODE3[MODE]
    MODE3 --> KEEP[KEEP 1000]
    KEEP --> MODE4[MODE]
    MODE4 --> TEMP_DEC{TEMP 설정}
    TEMP_DEC -- NO --> TEMP_DEC
    TEMP_DEC -- YES --> TEMP_MENU[TEMP 1000]
    TEMP_MENU --> MODE5[MODE]
    MODE5 --> AO_DEC{AO 설정}
    AO_DEC -- NO --> AO_DEC
    AO_DEC -- YES --> OUT_MENU[OUT 0.00]
    OUT_MENU --> MODE6[MODE]
    MODE6 --> PV2[PV]
  
```

ORDERING CODE

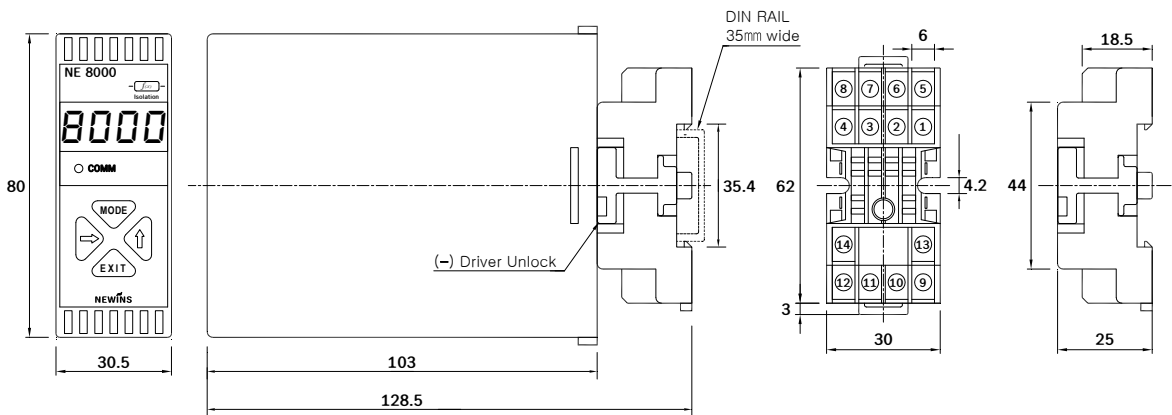
NE 80			-		Description
Output	0				DC4.0~20.0mA
Power		0			AC 85~265V (45~65Hz)
		1			DC 24V

B

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



* When mounting, no extra space is needed between units

FEATURES

- Potentiometer input
- High accuracy 16bit A/D converter
- Peak hold function (Highest & Lowest)
- 2points alarm & Dead band set
- Isolation current output (DC 4.00~20.00mA) & Output scaling



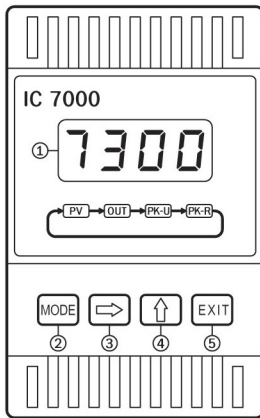
SPECIFICATIONS

- ▷ Input(Potentiometer) : 100Ω~100kΩ, 1.25V
- ▷ Measuring and display cycle : 100ms
- ▷ Input resistance : 1MΩ
- ▷ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▷ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▷ Moving average filter
- ▷ Accuracy : ±0.2% FS
- ▷ Isolation current output(Optional)
 - Current : DC 4.00~20.00mA
 - Maximum load resistance : 600Ω
 - Isolation resistance(Input-Output, Two-Output) : 100MΩ or more(DC 500V)
- ▷ Ambient temperature & Humidity
 - Operation : -10~50℃, 10~90%
 - Storage : -20~70℃, 5~95%
- ▷ Alarm(Optional)
 - Contact output type : Normal open, Normal close
 - Max switching power : 60W 125VA
 - Max switching voltage : DC 220V, AC 250V
 - Max switching current : DC 2A, AC
 - Max Carrying current : DC 3A, AC
- ▷ Power supply
 - Voltage : AC 110/220V(50~60Hz)
DC 24V(Optional)
 - Power consumption : Max 4VA
 - Isolation resistance : 100MΩ, DC 500V
(FG-Input, FG-Power, Power-Input, Input-Output)
- ▷ Etc
 - Weight : 500g
 - Mounting : Din rail & wall mounted
 - Dimension : 50(W) X 80(H) X 102(D)mm

가변저항 변환기

POTENTIOMETER CONVERTER

PARTS NAME



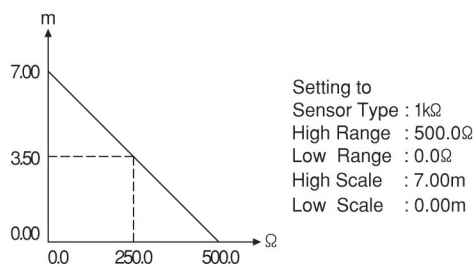
- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **→** Key :
Enter into the data setting mode and modify the changed location
- ④ **↑** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

MAJOR FUNCTIONS

► Display scaling function(mV, Volt, mA only)

This Function changes and sets the display value according to scale and input range.

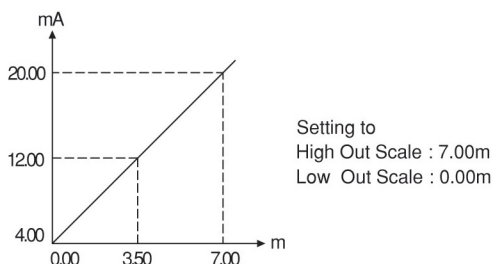
Ex) In case of input range 0.0~500.0Ω and Level 0.00~7.00m



► Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m, Output 4.00~20.00mA



► Alarm function

Alarm type : High, Low

The alarm consists of 2 relays, and it can output relay contact output individually

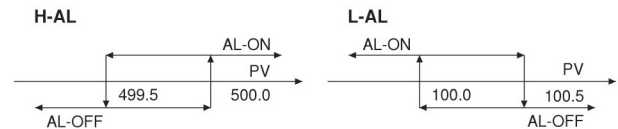
Ex) AL-1 : High alarm value 500.0,

AL-2 : Low alarm value 100.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The low alarm(AL-2) is OFF when the present value(PV) is 100.5 or more, and ON when 100.0 or less.



► Sensor compensation function

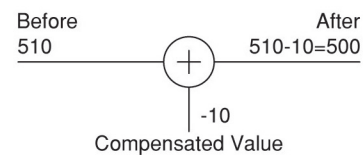
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510℃

After sensor adjust

= measured value + compensated value

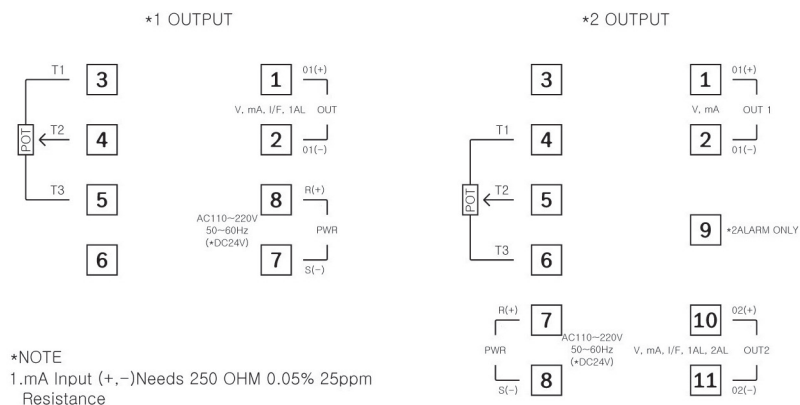
= 510 - 10 = 500℃



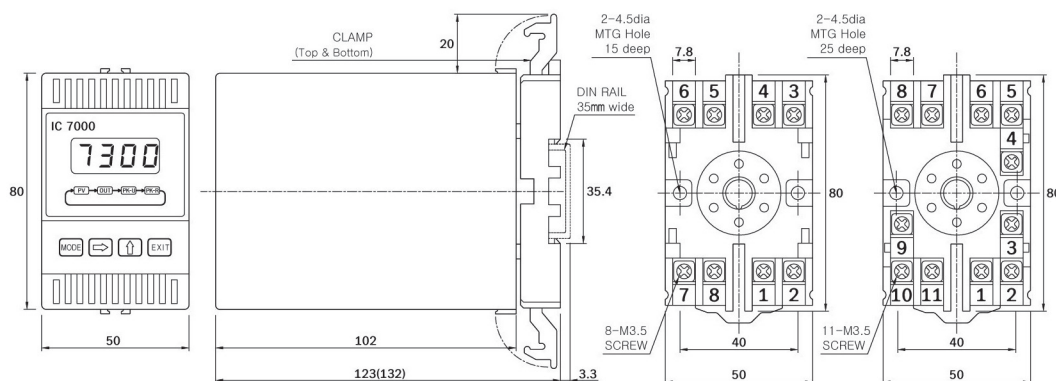
ORDERING CODE

IC 73		Description
Analog output	0	DC 4.00~20.00mA
	1	DC 4.00~20.00mA (2 Output)
	2	DC 0.0~10.0V
	3	DC 0.0~10.0V (2 Output)
	4	DC 1.0~5.0V
	5	DC 1.0~5.0V (2 Output)
	6	DC 4.00~20.00mA + 1Alarm
	7	2Alarm
	8	Etc
Power	0	AC 110/220V by S/W
	1	DC 24V

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



FEATURES

- **Multi input** (Pulse voltage, Contact, Open collector, DC 4.00~20.00mA)
- **High response**
- **Peak hold function** (Highest & Lowest)
- **Pulse output** (O.C, Contact, Pulse voltage)
- **1 point alarm & Dead band set**
- **Isolation current output** (DC 4.00~20.00mA)
- **Sensor power source DC 12V**
in STD specification (* DC 24V Option)



SPECIFICATIONS

▷ **mA input** : DC 4.00~20.00mA

▷ **Pulse input**

Low level voltage : DC 0.7V or less
 High level voltage : DC 1.5V or more
 Max high voltage : DC 30V
 Input resistance : 150kΩ

Range Code	Input	Minimum setting range
Range 0	4.00~20.00mA	-
Range 1	0.000~1.000Hz	0.100Hz
Range 2	0.000~9.999Hz	1.00Hz
Range 3	0.00~99.99Hz	10.0Hz
Range 4	0.0~999.9Hz	100Hz
Range 5	0.0000~9.999kHz	1.000Hz
Range 6	0.00~40.00kHz	10.00kHz

* Others is order made

- ▷ **Measuring and display cycle** : Minimum 1s.
more short according to input frequency
- ▷ **CMRR(Common Mode Rejection Ratio)** : 140dB or more
- ▷ **NMRR(Normal Mode Rejection Ratio)** : 60dB or more
- ▷ **Moving average filter by selection** :
None, Average 4, Average 8, Average 16
- ▷ **Built-in sensor power source** : DC 12V 30mA ±0.5%
- ▷ **Accuracy** : ±0.2% FS
- ▷ **Isolation current output(Optional)**
 - Current : DC 4.00~20.00mA
 - Maximum load resistance : 600Ω
 - Insolation resistance(Input-Output) : 100MΩ or more(DC 500V)

▷ **Isolation voltage output(Optional)**

Voltage : DC 0~10V
 Minimum load resistance : 1kΩ or more
 Insolation resistance(Input-Output) : 100MΩ or more(DC 500V)

▷ **Pulse output**

Open collector output : Max 100Hz, DC 50V/within 30mA
 Voltage output : Max 100Hz, Lo(DC 0V), Hi(DC 24V)
 Relay contact output : Max 5Hz same as alarm

▷ **Alarm Output**

Contact output type : Normal open, Normal close
 Max switching power : 60W 125VA
 Max switching voltage : DC 220V, AC 250V
 Max switching current : DC 2A, AC
 Max Carrying current : DC 3A, AC

▷ **Ambient temperature & Humidity**

Operation : -10~50°C, 10~90%
 Storage : -20~70°C, 5~95%

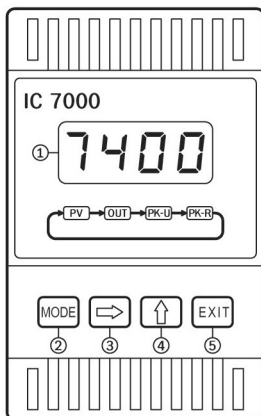
▷ **Power supply**

Voltage : AC 110/220V(50~60Hz) by S/W
 DC 24V(Optional)
 Power consumption : Max 4VA
 Isolation resistance : 100MΩ, DC 500V
 (FG-Input, FG-Power,
 Power-Input, Input-Output)

▷ **Etc**

Weight : 500g
 Mounting : Din rail & wall mounted
 Dimension : 50(W) X 80(H) X 102(D)mm

PARTS NAME



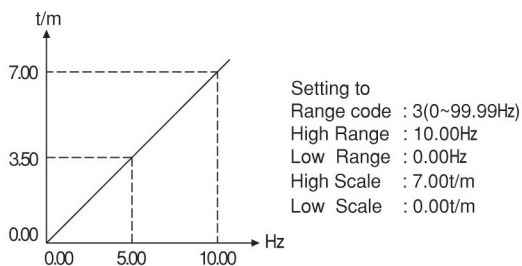
- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **→** Key :
Enter into the data setting mode and modify the changed location
- ④ **↑** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

MAJOR FUNCTIONS

▷ Display scaling function(mV, Volt, mA only)

This function changes and sets the display value according to scale and input range.

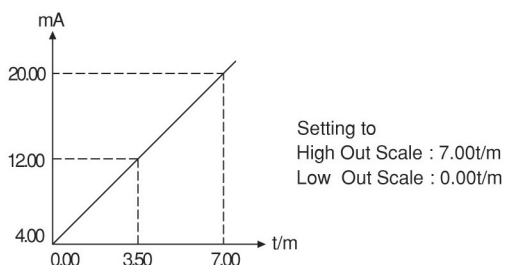
Ex) In case of input range 0.00~10.00Hz and Level 0.00~7.00t/m



▷ Current output scaling function

This function is that 4.00~20.00mA output value is changed by output scale.

Ex) In case of display value 0.00~7.00t/m, Output 4.00~20.00mA



▷ Pulse output scaling function

If input is mA(Range 0), it sets pulse number per hour when full scale(20mA).

Ex) Setting 3600, it outputs 3600 pulse a hour(1 pulse a second) when 20mA current inputs. If input is pulse (Range : 1~6), it sets a rate of input versus output.

Ex) Setting 100, It output 1 pulse when 100 pulse inputs.

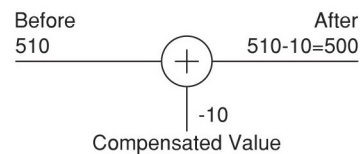
▷ Sensor compensation function

The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510°C

After sensor adjust

$$= \text{measured value} + \text{compensated value} \\ = 510 - 10 = 500^\circ\text{C}$$



▷ Function(Volt, mA type only)

L i n

Pass the input as it is.

Used for general input type and linearity input.

r o o t

Pass the input after $\sqrt{\quad}$. Used for flow rate by orifice.

L i m i t

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

▷ Alarm function

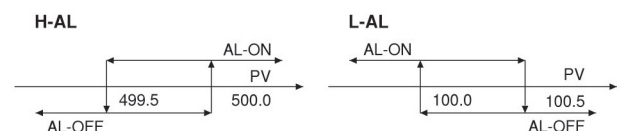
Alarm type : High, Low

Ex) AL-1 : High alarm value 500.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The high alarm(AL-2) is OFF when the present value (PV) is 100.5 or more, and ON when 100.0 or less.



▷ Filter function

Filter is moving average filter and it has 4 kinds of function.

n o n E

It displays the change of input without filter.

R u 4, 8, 16

It displays in recent input No 4,8,16 sample average.

Setting filter function delays response.

Do not use filter when high speed response is needed.

When output and display value are changed by irregular input, it is possible to get regular input and display value by using filter function.

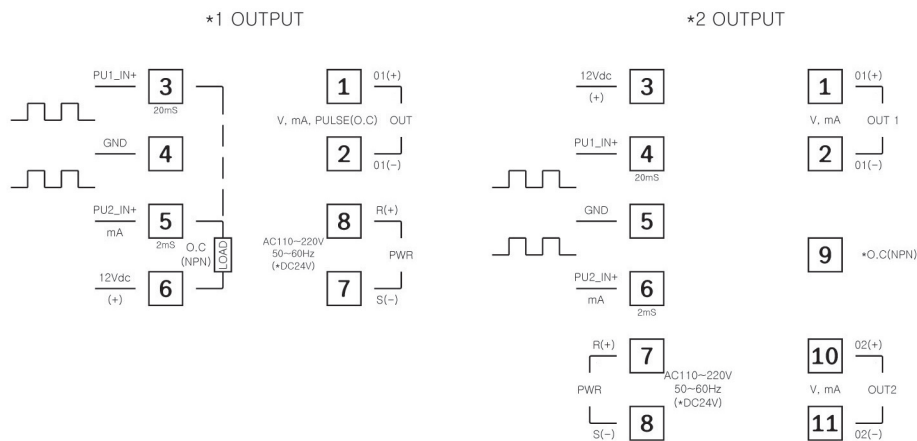
펄스 변환기

ISOLATED PULSE CONVERTER

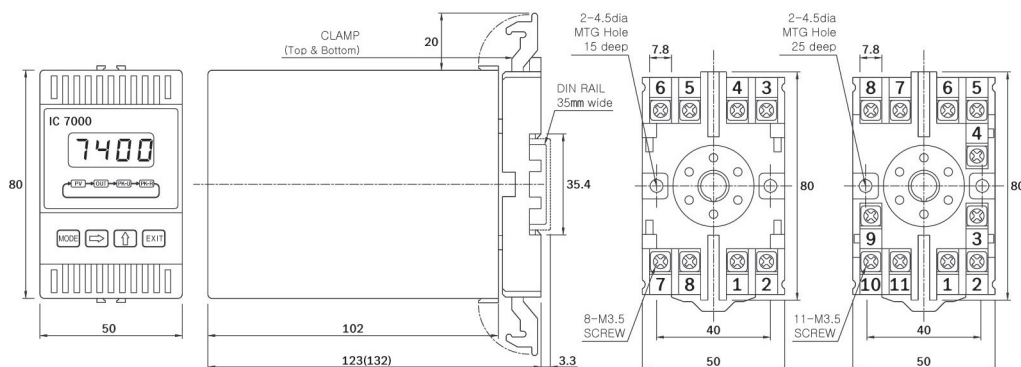
ORDERING CODE

IC 74					Description
Input	0 1				Pulse input DC 4.00~20.00mA input
Power	0 1 2 3 4 5				DC 4.00~20.00mA DC 4.00~20.00mA + Relay contact DC 4.00~20.00mA + OC pulse output DC 4.00~20.00mA + Voltage pulse output DC 4.00~20.00mA + Relay contact pulse output Etc
Communication		0 1			AC 110/220V by S/W DC 24V (Option)

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



FEATURES

- Loadcell input ($200\Omega \sim 10k\Omega$)
- High accuracy 16bit A/D converter
- Peak hold function (Highest & Lowest)
- 2 points alarm & Dead band set
- Isolation current output (DC 4.00~20.00mA) & Output scaling



SPECIFICATIONS

- ▷ Measuring and display cycle : 100ms
- ▷ Input resistance : $1M\Omega$
- ▷ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▷ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▷ Moving average filter
- ▷ Built-in Sensor power source : DC 24V 30mA $\pm 0.5\%$
- ▷ Accuracy : $\pm 0.2\%$ FS
- ▷ Isolation current output(Optional)
(2 output is isolation between output)
 - Current : DC 4.00~20.00mA
 - Maximum load resistance : 600Ω
 - Isolation resistance(Input-Output) : $100M\Omega$ or more (DC 500V)
- Isolation voltage output(Optional)
 - Voltage : DC 0~10V
 - Minimum load resistance : $1k\Omega$ or more
 - Insolation resistance(Input-Output) : $100M\Omega$ or more (DC 500V)

▷ Alarm(Optional)

- Contact output type : Normal open, Normal close
- Max switching power : 60W 125VA
- Max switching voltage : DC 220V, AC 250V
- Max switching current : DC 2A, AC
- Max Carrying current : DC 3A, AC

▷ Ambient temperature & Humidity

- Operation : $-10 \sim 50^{\circ}\text{C}$, 10~90%
- Storage : $-20 \sim 70^{\circ}\text{C}$, 5~95%

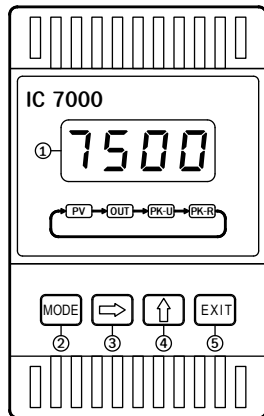
Power supply

- Voltage : AC 110/220V(50~60Hz)
DC 24V(Optional)
- Power consumption : Max 4VA
- Isolation resistance : $100M\Omega$, DC 500V
(FG-Input, FG-Power,
Power-Input, Input-Output)

Etc

- Weight : 500g
- Mounting : Din rail & wall mounted
- Dimension : 50(W) X 80(H) X 102(D)mm

PARTS NAME



- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **→** Key :
Enter into the data setting mode and modify the changed location
- ④ **↑** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

INPUT TYPE

Sensor Type		Range	Scale	Symbol
Volt	mV	-100.0~100.0mV	-1999~9999	$\bar{n}u$
	Volt	-10.0~10.0V	-1999~9999	u

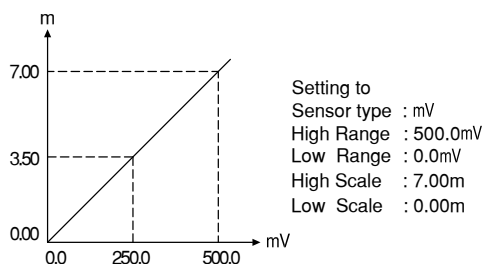
* Bridge resistor : 200Ω~100kΩ

MAJOR FUNCTIONS

► Display scaling function(mV, Volt, mA)

This Function changes and sets the display value according to scale and input range.

Ex) In case of input range 0.0~500.0mV and Level 0.00~7.00m



Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m,
Output 4.00~20.00mA

► Alarm function

Alarm type : High, Low

The alarm consists of 4 relays, and it can output relay contact output individually

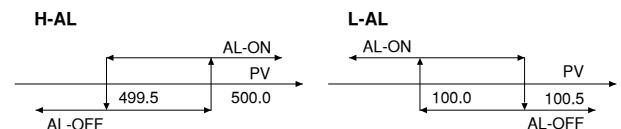
Ex) AL-1 : High alarm value 500.0,

AL-2 : Low alarm value 100.0,

Alarm dead band setting 0.5

The high alarm(AL-1) is ON when the present value(PV) is 500.0 or more, and OFF when 499.5 or less.

The low alarm(AL-2) is OFF when the present value(PV) is 100.5 or more, and ON when 100.0 or less.



► Sensor compensation function

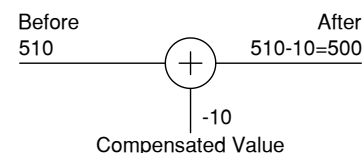
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510°C

After sensor adjust

= measured value + compensated value

= 510 - 10 = 500°C



► Peak hold function

Peak mode 0 High peak mode

Remember the highest input value and display the highest value when pressing the key.

Peak mode 1 Low peak mode

Remember the lowest input value and display the lowest value when pressing the key.

High peak & Display mode

Remember the highest input value, display the highest value in ordinary times, and output the highest transmit output.

Low peak & Display mode

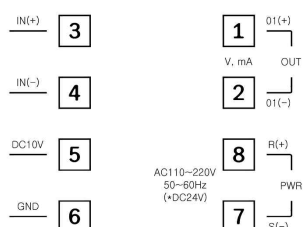
Remember the lowest input value, display the lowest value in ordinary times, and output the lowest transmit output.

ORDERING CODE

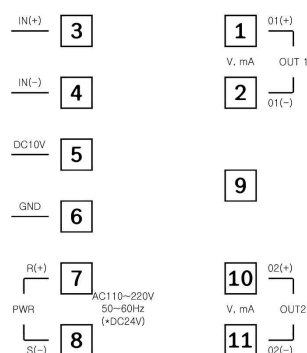
IC 75			Description
Analog output	0		Isolation current Single output (DC 4.00~20.00mA)
	1		Isolation current Double output (DC 4.00~20.00mA)
	2		Isolation voltage Single output (DC 0~10V)
	3		Isolation voltage Double output (DC 0~10V)
	4		Etc
Power		0	AC 110/220V by S/W
		1	DC 24Volt

TERMINAL DIAGRAM

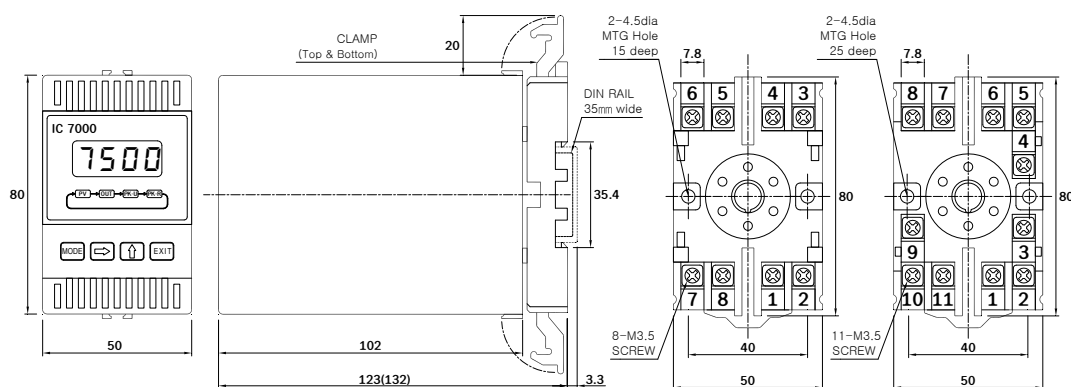
*1 OUTPUT



*2 OUTPUT



DIMENSION & PANEL CUT



FEATURES

- Multi-range input (Volt, mA)
- High accuracy 16bit A/D converter
- The ratio of input to output setting 0.5~1.5 and output according to input
- Isolation current output (DC 4.00~20.00mA) & Output scaling



SPECIFICATIONS

- ▶ Measuring and display cycle : 100ms(mV, Volt, mA type)
200ms(TC, RTD type)
- ▶ Input resistance : Volt-400k Ω
Others type-1M Ω
- ▶ Signal source resistance : Pt 100 Ω type-30 Ω /line
Others type-300 Ω /line
- ▶ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▶ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▶ Moving average filter
- ▶ Sensor power source : DC 24V 30mA $\pm$ 0.5%
- ▶ Accuracy : $\pm$ 0.2% FS
- ▶ Isolation voltage output(Optional)
(2 output is isolation between output)
Voltage : DC 0~10V
Minimum load resistance : 1k Ω
Insolation resistance(Input-Output) : 100M Ω or more
(DC 500V)

▶ Isolation current output(Optional)

- Current : DC 4.00~20.00mA
- Maximum load resistance : 600 Ω
- Isolation resistance(Input-Output) : 100M Ω or more
(DC 500V)

▶ Ambient temperature & Humidity

- Operation : -10~50 $^{\circ}$ C, 10~90%
- Storage : -20~70 $^{\circ}$ C, 5~95%

▶ Power supply

- Voltage : AC 110/220V(50~60Hz) by S/W
DC 24V(Optional)
- Power consumption : Max 4VA
- Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power,
Power-Input, Input-Output)

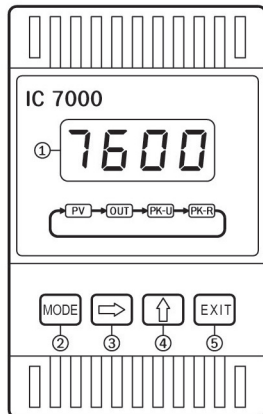
▶ Etc

- Weight : 500g
- Mounting : Din rail & wall mounted
- Dimension : 50(W) X 80(H) X 102(D)mm

비율설정 변환기

ISOLATED RATIO CONVERTER

PARTS NAME



- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **ENTER** Key :
Enter into the data setting mode and modify the changed location
- ④ **UP** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

INPUT TYPE

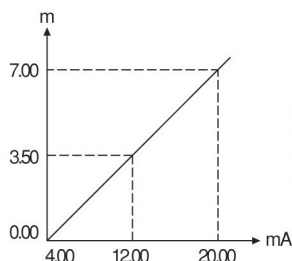
Sensor Type		Range	Scale	Symbol
Volt	mV	-50.0~50.0mV	-1999~9999	$\tilde{m}V$
	Volt	-10.0~10.0V	-1999~9999	$\tilde{V}$
mA	mA	4.00~20.00mA	-1999~9999	$\tilde{mA}$

MAJOR FUNCTIONS

▷ Display scaling function(mV, Volt, mA only)

This Function changes and sets the display value according to scale and input range.

Ex) In case of input range 4.00~20.00mA and Level 0.00~7.00m

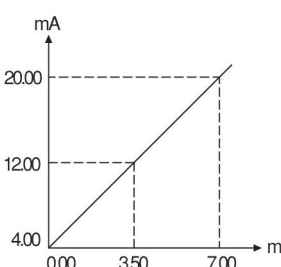


Setting to
Sensor Type : mA
High Range : 20.00mA
Low Range : 4.00mA
High Scale : 7.00m
Low Scale : 0.00m

▷ Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m,
Output 4.00~20.00mA



Setting to
High Out Scale : 7.00m
Low Out Scale : 0.00m

▷ Sensor compensation function

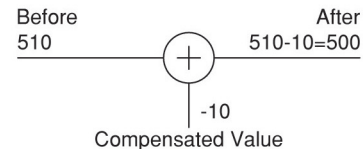
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 510°C

After sensor adjust

= measured value + compensated value

= 510 - 10 = 500°C



▷ Function(Volt, mA type only)

L in

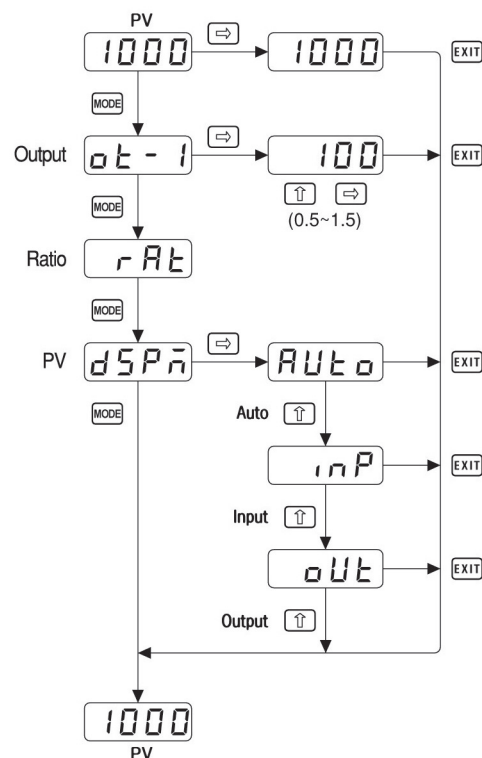
Pass the input as it is.

Used for general input type and linearity input.

L lin

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

OPERATION MODE



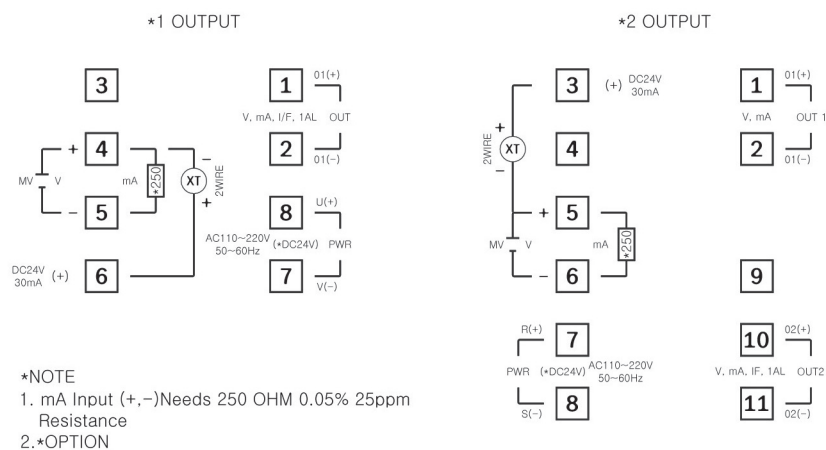
비율설정 변환기

ISOLATED RATIO CONVERTER

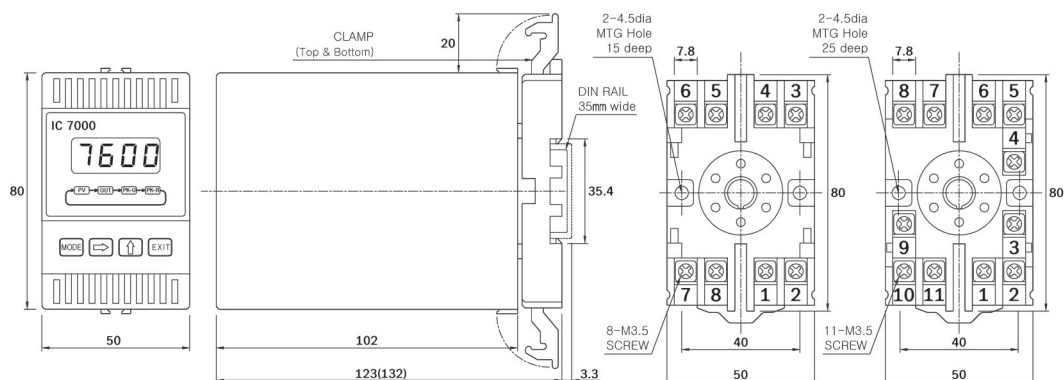
ORDERING CODE

IC 76		Description
Analog output	0	DC 4.00~20.00mA
	1	DC 4.00~20.00mA (2 Output)
	2	DC 0.0~10.0V
	3	DC 0.0~10.0V (2 Output)
	4	Etc
Power	0	AC 110/220V by S/W
	1	DC 24V

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



FEATURES

- Synchronous transmitter or receive signal input
- Response is prompt
- 360 angles zero & span set is available
- DC 4.00~20.00mA output scaling is possible
- Display and output because use input filter



SPECIFICATIONS

- ▶ **Input voltage** : AC 0~90V Synchro transmitter second
- ▶ **Input frequency** : 50~60Hz
- ▶ **Measuring and display cycle** : 200ms(mV, Volt, mA type)
- ▶ **CMRR(Common Mode Rejection Ratio)** : 140dB or more
- ▶ **NMRR(Normal Mode Rejection Ratio)** : 60dB or more
- ▶ **Moving average filter** : Average 4
- ▶ **Accuracy** : $\pm 0.2\%$ FS
- ▶ **Isolation current output(Optional)**
 - Current : DC 4.00~20.00mA
 - Maximum load resistance : 600 Ω
 - Isolation resistance(Input-Output) : 100M Ω or more (DC 500V)
- ▶ **Isolation voltage output(Optional)**
 - (2 output is isolation between output)
 - Voltage : DC 0~10V
 - Minimum load resistance : 1k Ω
 - Insolation resistance(Input-Output) : 100M Ω or more (DC 500V)

▶ **Ambient temperature & Humidity**

- Operation : -10~50 $^{\circ}$ C, 10~90%
- Storage : -20~70 $^{\circ}$ C, 5~95%

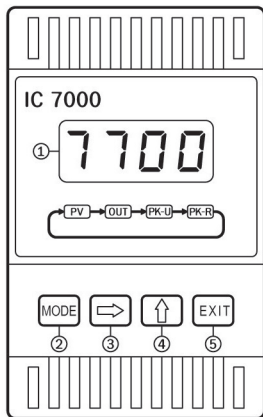
▶ **Power supply**

- Voltage : AC 110/220V(50~60Hz) by S/W
- Power consumption : Max 4VA
- Isolation resistance : 100M Ω , DC 500V (FG-Input, FG-Power, Power-Input, Input-Output)

▶ **Etc**

- Weight : 500g
- Mounting : Din rail & wall mounted
- Dimension : 50(W) X 80(H) X 102(D)mm

PARTS NAME



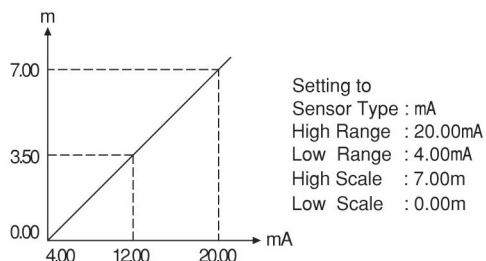
- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **⇒** Key :
Enter into the data setting mode and modify the changed location
- ④ **↑** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

MAJOR FUNCTIONS

► Display scaling function(mV, Volt, mA only)

This Function changes and sets the display value according to scale and input range.

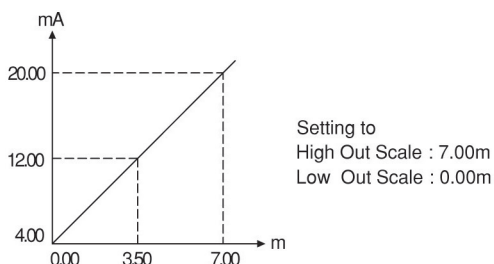
Ex) In case of input range 4.00~20.00mA and Level 0.00~7.00m



► Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex) In case of display value 0.00~7.00m, Output 4.00~20.00mA



► Sensor compensation function

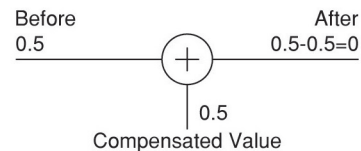
The function is useful for compensating error by long sensor line or changed zero point by aged sensor.

Ex) Before sensor adjust = 0.5m

After sensor adjust

= measured value + compensated value

= 0.5 - 0.5 = 0



► Function(Volt, mA type only)

L i n

Pass the input as it is.

Used for general input type and linearity input.

L i m i t

Like level measuring, when it does not display measuring under zero, it always can display zero by using limit function.

TRIM FUNCTION

Trim function should establishes instrument, and achieve certainly after synchronous transmitter connection.

If do not it. Display value can be unequal with synchro.

After all reset, I do trim certainly can operate as summit.

Zero

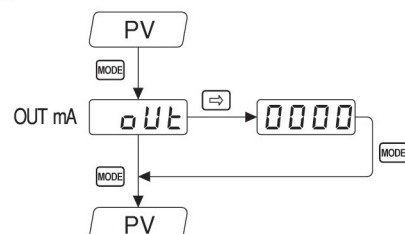
Synchro transmitter is located to zero point and in measuring instrument zero point function that remember zero point doing trim be.

Span

Synchro transmitter is located to span point and in measuring instrument span point function that remember span point doing trim be. Positions of zero and span point is possible in 360 angles all, and measurement is measured to span point increasing to continuous wave direction beginning in zero point.

OPERATION MODE

► Can confirm PV value and mA value during driving ordinarily.



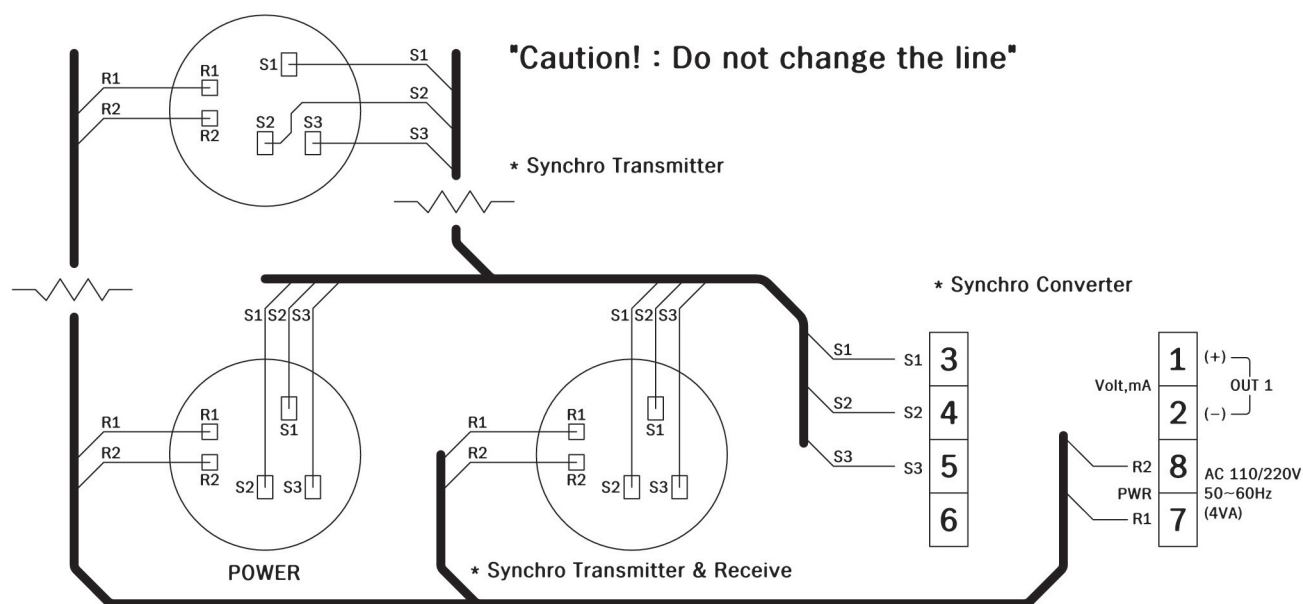
동기 변환기

SYNCHRONOUS CONVERTER

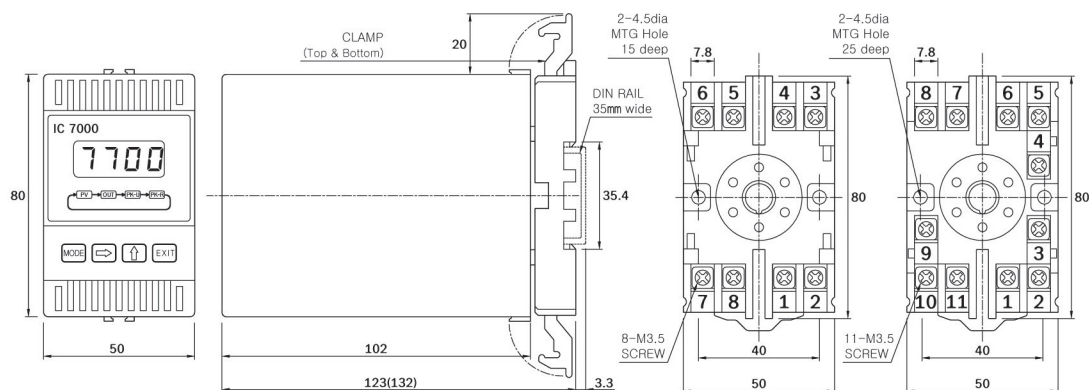
ORDERING CODE

IC 77			-		Description
Input	0 1				Synchronous Etc
Power		0			AC 110/220V by S/W
Output				0 1	DC 4.00~20.00mA Etc

TERMINAL DIAGRAM



DIMENSION & PANEL CUT



* When mounting, no extra space is needed between units

FEATURES

- 3Ch Signal acceptance (mV, V, mA)
- High accuracy 16bit A/D converter
- Various operation functions
(Add, Sub, Multiplication, Division)
- Flow, Temperature and
Pressure compensation function
- Each channel setting input, Gain and Bias
- Isolation current output & Output scaling



SPECIFICATIONS

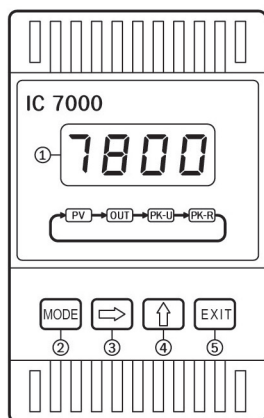
- ▶ Measuring and display cycle : 400ms/3Ch
- ▶ Input resistance : 100k Ω
- ▶ Signal source resistance : 100 Ω /line
- ▶ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▶ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▶ Moving average filter
- ▶ Accuracy : $\pm 0.2\%$ FS
- ▶ Isolation current output
(2 output is isolation between output)
Current : DC 4.00~20.00mA
Maximum load resistance : 600 Ω
Isolation resistance(Input-Output, Two-Output) :
100M Ω or more (DC 500V)
- ▶ Isolation voltage output
(2 output is isolation between output)
Voltage : DC 0~10V
Minimum load resistance : 1k Ω or more
Insolation resistance(Input-Output, Two-Output) :
100M Ω or more (DC 500V)

- ▶ Ambient temperature & Humidity
Operation : -10~50°C, 10~90%
Storage : -20~70°C, 5~95%
- ▶ Power supply
Voltage : AC 110/220V(50~60Hz) by S/W
DC 24V(Optional)
Power consumption : Max 4VA
Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power,
Power-Input, Input-Output)
- ▶ Etc
Weight : 500g
Mounting : Din rail & wall mounted
Dimension : 50(W) X 80(H) X 102(D)mm

다기능 연산 변환기

MULTI FUNCTION CONVERTER

PARTS NAME



- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **ENTER** Key :
Enter into the data setting mode and modify the changed location
- ④ **UP** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

INPUT TYPE

Sensor Type	Range	Scale	Symbol
Volt	mV	-100.0~100.0mV	-1999~9999
	Volt	-10.0~10.0V	-1999~9999
mA	mA	4.00~20.00mA	-1999~9999

MAJOR FUNCTIONS

Math function

K0, K1, K2, K3

=Scale Parameter(Setting Range : 0.01~99.99, -0.01~-19.9)

A0, A1, A2, A3

=Offset Parameter(Setting Range : 0.0~999.9, -0.0~-199.9)

ADD

$$Y = K0 * \{(K1 * X1 + A1) + (K2 * X2 + A2) + (K3 * X3 + A3)\} + A0$$

Ex) In case of 3 input average:

input 4.00~20.00mA and display 0.0~5.0 setting to

K0=5.0, K1=K2=K3=0.33, A0=A1=A2=A3=0.0,

display point=3, Output Scale H10t=5.0, L10t=0.0

MPY

$$Y = K0 * \{(K1 * X1 + A1) * (K2 * X2 + A2) * (K3 * X3 + A3)\} + A0$$

Ex) In case of 3 input multiplication:

input 4.00~20.00mA and display 0.0~100.0 setting to

K0=1.0, K1=K2=K3=0.1, A0=A1=A2=A3=0.0,

display point=1, Output Scale H10t=100.0, L10t=0.0

DIV

$$Y = K0 * \{(K1 * X1 + A1) * (K2 * X2 + A2) / (K3 * X3 + A3)\} + A0$$

Ex) In case of 2 input multiplication and 1 input division:

input 4.00~20.00mA and display 0.0~10.0 setting to

K0=1.0, K1=K2=K3=1, A0=A1=A2=A3=0.0,

display point=2, Output Scale H10t=10.0, L10t=0.0

COMP

$$Y = K0 * \{(K1 * X1 + A1) \sqrt{(K2 * X2 + A2) / (K3 * X3 + A3)}\} + A0$$

Ex) In case of steam measuring flow temperature and

pressure compensation input 4.00~20.00mA and

display 0.0~10.0.

K0=0.1, K1=K2=K3=1, A0=A1=A2=A3=0.0,

display point=2, Output Scale H10t=10.0, L10t=0.0

High selector

Output the highest value of 3 input

Low selector

Output the lowest value of 3 input

Note

Function(ADD), Input(mA), H-Range(20.00),
L-Range(4.00), A-Factor(0.00), K-Factor(1.00),
Display-Point(1), H-Out(100.0), L-Out(0.0)

Range setting function

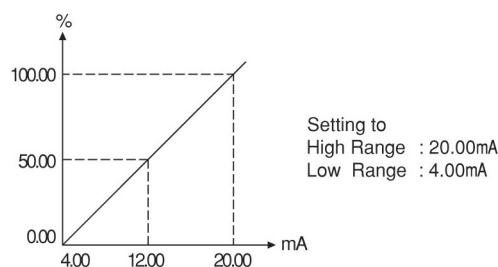
This Function can change and set channel display by input range.

In case of thermocouple, Temperature is displayed.

In case of mV, V, mA, Scale is set as 0~100%.

Ex) In case of range 4.00~20.00mA and

Scale 0.0~100.0%

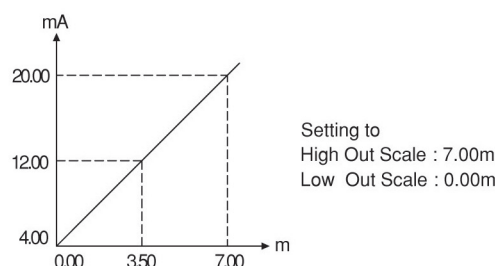


Output setting function

This function can change the 4.00~20.00mA output by output scale.

Ex) In case of display value 0.00~7.00m,

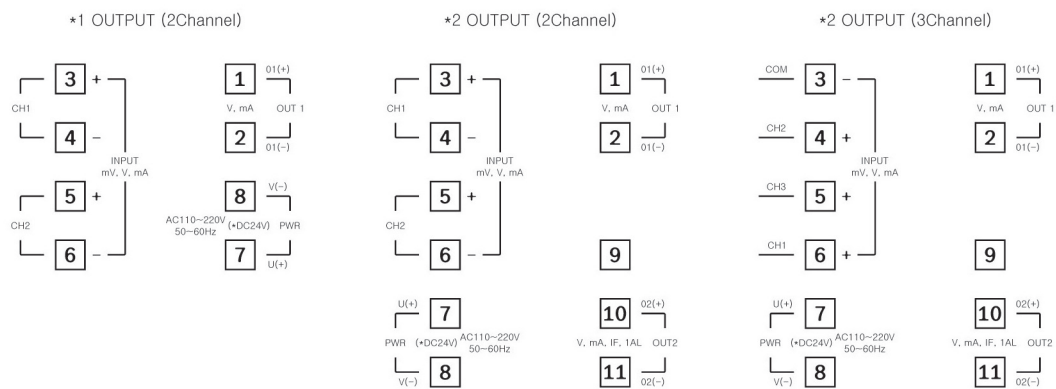
Output 4.00~20.00mA



ORDERING CODE

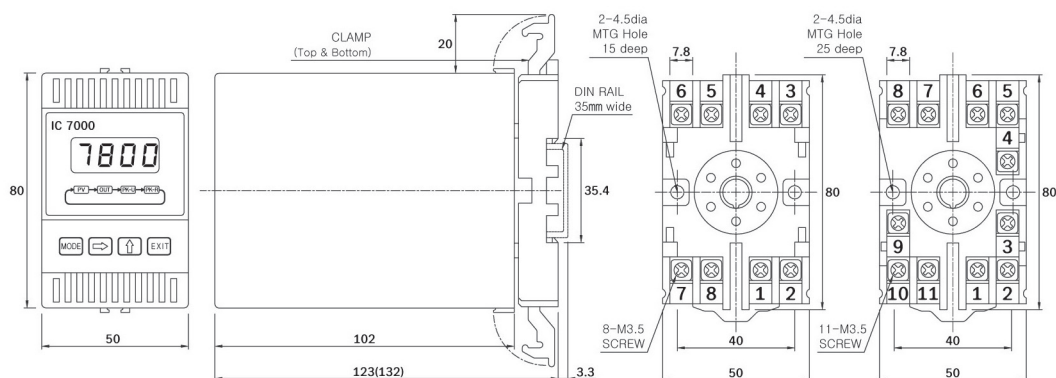
IC 78		Description
Analog output	0	DC 4.00~20.00mA
	1	DC 4.00~20.00mA (2 Output)
	2	DC 0~10V
	3	DC 0~10V (2 Output)
	4	Etc
Power	0	AC 110/220V by S/W
	1	DC 24V

TERMINAL DIAGRAM



*NOTE
 1. mA Input (+,-)Needs 250 OHM 0.05% 25ppm Resistance
 2.*OPTION

DIMENSION & PANEL CUT



FEATURES

- Input 12 points linear table and output property curve you want
- High accuracy 16bit A/D converter
- Isolation current output (DC 4.00~20.00mA) & Output scaling
- Sensor power source DC 24V in STD specification



SPECIFICATIONS

- ▷ Input : mV, Volt, mA
- ▷ Measuring and display cycle : 200ms(mV, Volt, mA type)
- ▷ Input resistance : Volt-400k Ω
Others type-1M Ω
- ▷ Signal source resistance : 300 Ω /line
- ▷ CMRR(Common Mode Rejection Ratio) : 140dB or more
- ▷ NMRR(Normal Mode Rejection Ratio) : 60dB or more
- ▷ Moving average filter
- ▷ Built-in Sensor power source : DC 24V 30mA $\pm$ 0.5%
- ▷ Accuracy : $\pm$ 0.2% FS
- ▷ Isolation current output(Optional)
 - Current : DC 4.00~20.00mA
 - Maximum load resistance : 600 Ω
 - Isolation resistance(Input-Output) : 100M Ω or more (DC 500V)
- ▷ Isolation voltage output(Optional)
 - Voltage : DC 0~5V, DC 0~10V
 - Minimum load resistance : 1k Ω or more
 - Isolation resistance(Input-Output) : 100M Ω or more (DC 500V)

▷ Ambient temperature & Humidity

- Operation : -10~50 $^{\circ}$ C, 10~90%
- Storage : -20~70 $^{\circ}$ C, 5~95%

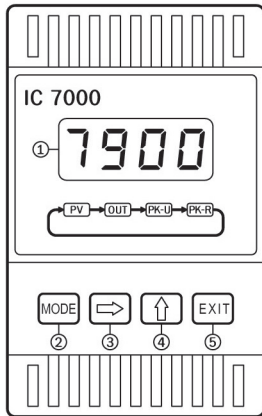
▷ Power supply

- Voltage : AC 110/220V(50~60Hz)
DC 24V(Optional)
- Power consumption : Max 4VA
- Isolation resistance : 100M Ω , DC 500V
(FG-Input, FG-Power, Power-Input, Input-Output)

▷ Etc

- Weight : 500g
- Mounting : Din rail & wall mounted
- Dimension : 50(W) X 80(H) X 102(D)mm

PARTS NAME



- ① Measured value display
- ② **MODE** Key :
Storage the set data and change the operation menu
- ③ **ENTER** Key :
Enter into the data setting mode and modify the changed location
- ④ **UP** Key :
Change the data value
- ⑤ **EXIT** Key : Out of mode

INPUT TYPE

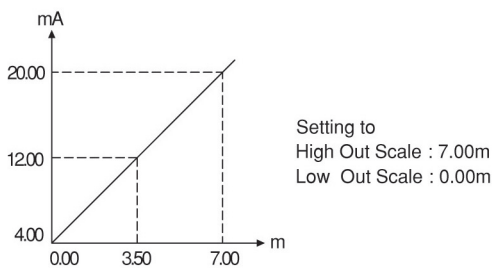
Sensor Type		Range	Scale	Symbol
Volt	mV	-50.0~50.0mV	-1999~9999	$\bar{n}u$
	Volt	-10.0~10.0V	-1999~9999	u
mA	mA	4.00~20.00mA	-1999~9999	$\bar{n}R$

MAJOR FUNCTIONS

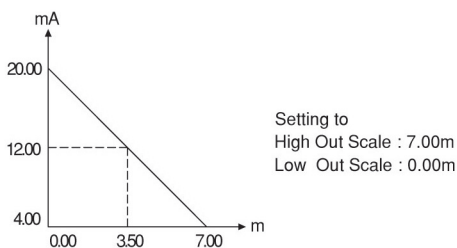
▷ Output scaling function

This function can change the 4.00~20.00mA value as the output scale.

Ex A) In case of display value 0.00~7.00m,
Output 4.00~20.00mA



Ex B) In case of display value 0.00~7.00m,
Output 4.00~20.00mA

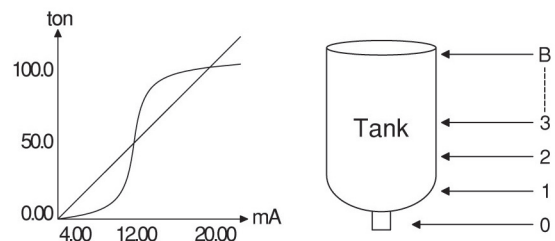


▷ Linearizer function(mV, Volt, mA only)

This function is when inputting by inputted linear table, it reads up-and-down two points mostly to current input from table and makes them more straight.

Ex) In case of input range 4.00~20.00mA and spherical tank to measure volume and weight of contents, assume that weight is 10.00ton.

Step	Range	Scale
0	0.00	-25.0
1	2.00	-12.5
2	4.00	0.00
3	6.00	12.5
4	8.00	25.0
5	10.00	37.5
6	12.00	50.0
7	14.00	62.5
8	16.00	75.0
9	18.00	87.5
A	20.00	100.0
B	22.00	112.5

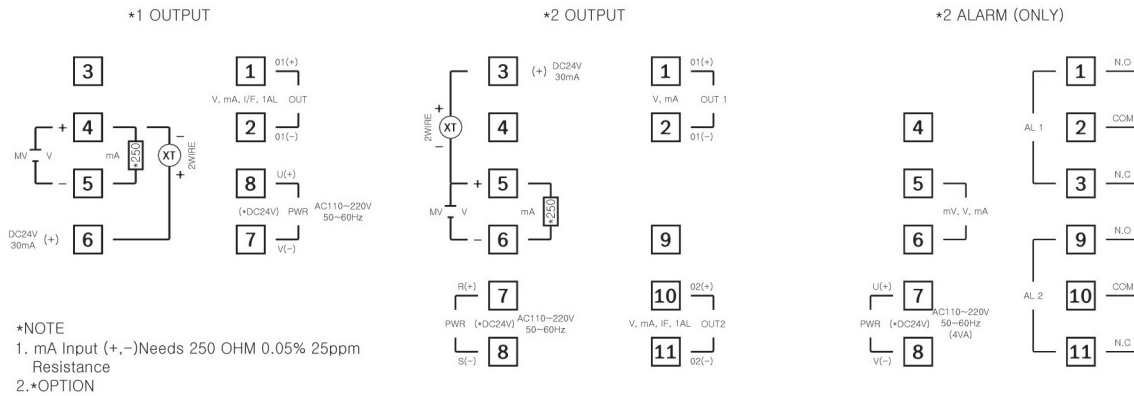


* When setting range, it needs high range according to large number and has to input all tables.
Or it does not operate normally.

ORDERING CODE

IC 79			-		Description
Input	1 2 3				mV, Volt mA (250Ω) Etc
Analog output	0 1 2				DC 4.00~20.00mA DC 4.00~20.00mA (2 Output) Etc
Power			0 1		AC 110/220V by S/W DC 24V

TERMINAL DIAGRAM



DIMENSION & PANEL CUT

