We thank you for your purchase of the 2400 series detect relay. For safety use of this product, please observe the following caution and also read the instructions to follow before the initial operation for proper operation of it.

⚠ CAUTION

To prevent electric shock, observe the following cautions:
- **◆ Never make power line connections with active lines.**
- **◆ Ensure firm and tight connections to the terminals.**
- **◆ Do not touch the power source terminals while the instrument is powered on.**

To avoid electric shock, failure or abnormal heat-up of the instrument, do not use the instruments in such places where:
- **◆ exposed to rain, water drops or direct sunlight.**
- **◆ high temperature or humidity, much dust or corrosive gas.**
- **◆ affected by external noise, radio waves or static electricity.**

■ Check at Delivery

When the product is delivered to you, please check that its specifications conform to your requirements and that there is no damage in transit. This instrument is carefully inspected before delivery from factory under our strict quality control program, but if you find any defect or inconvenience, please inform us of the model name, serial number of the product, etc.

■ Cautions for Use

①This product is a precision instrument, so please take utmost care for transportation, installation of any handling of it.

②No power on-off switch is provided on this relay, so it immediately starts to work when connected to the power source.

③ In case of fear that the external noise or surge may cause malfunction or breakdown of this product, it is necessary to take proper solution against noise.

④Use this product within the range or condition confirming to its specifications and standard.

■ Model

Note: Auxiliary unit 2422 is used together with the main unit 2411 or 2421. It can not be connected to some of AC input models.

Product Name	1ch Main Unit	2ch Main Unit	2ch Auxiliary Alarm Output Unit
Model Configuration	**2411** -□-□-□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦	**2421** -□-□-□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦	**2422** -□-□-□-□-□-□-□ ① ② ③ ④ ⑤ ⑥ ⑦

①Setting Method

Code	2411	2421	2422
D	Digital switch setting		
S	Screwdriver setting		

②Setting, Output

Code	2411	2421	2422
1	H Setting, relay contact output	HL Setting, relay contact output	
2	L Setting, relay contact output	HH Setting, relay contact output	
3	H Setting, open collector output	LL Setting, relay contact output	
4	L Setting, open collector output	HL Setting, open collector output	
5	----------	HH Setting, open collector output	
6	----------	LL Setting, open collector output	

③Input Signals

Code	2411	2421	2422
02	DC0~100mV		**Note**: 2422 is the auxiliary unit, so it accepts no input signal.
03	DC0~1V		
04	DC0~5V		
05	DC0~10V		
09	DC1~5V		
00	Other DC voltage input (60mV≦00≦300V)		
22	DC0~100 μ A		
23	DC0~1mA		
24	DC0~5mA		
25	DC0~10mA		
29	DC4~20mA		
20	Other DC current input (100 μ A≦20≦1A)		
44	AC0~150V rms		
46	AC0~300V rms		
40	(100mV≦40≦300V)		
53	AC0~1A rms		
54	AC0~5A rms		
50	(100mA≦50≦5A)		
73	AC0~1A	※Half wave peak detection system	
74	AC0~5A		
70	(100mA≦70≦5A)		

※Connection with 2422, 2ch Auxiliary Alarm Output Unit, is not possible.

Note: Specifications of ④Hysteresis, ⑤Power On Delay and ⑥Power Supply Voltage are common for 2411, 2421 and 2422.

④Hysteresis

Code	Specifications
H0	0.5% or less, standard
H1	approx. 1%
H2	approx. 2%
H3	approx. 3%
H4	approx. 4%
H5	approx. 5%

⑤Action Delay

Code	Specifications
T0	No delay, standard
T1	approx. 1 sec.
T2	approx. 2 sec.
T3	approx. 3 sec.
T4	approx. 4 sec.
T5	approx. 5 sec.

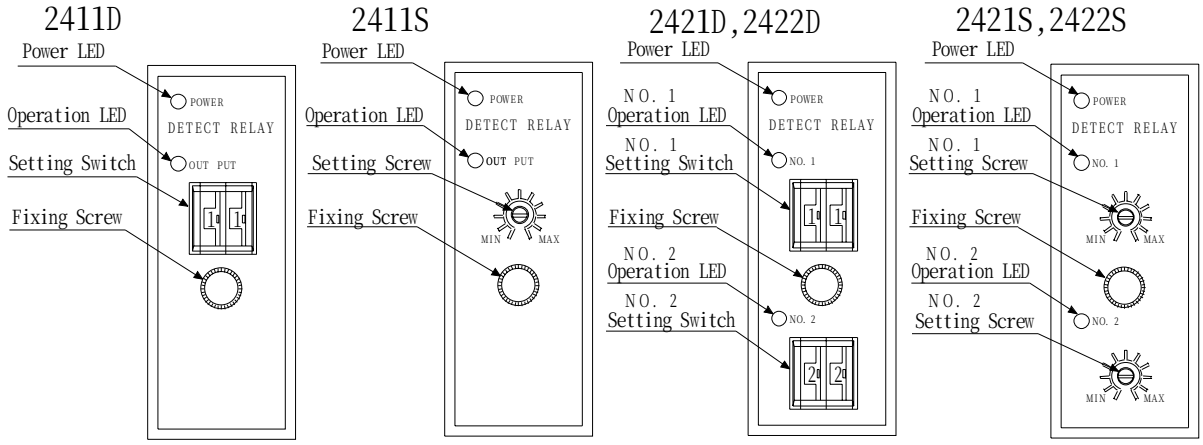
⑥Power Supply Voltage

Code	Specifications
A	AC85~264V 50/60Hz
9	DC20~30V
S	Other supply voltage

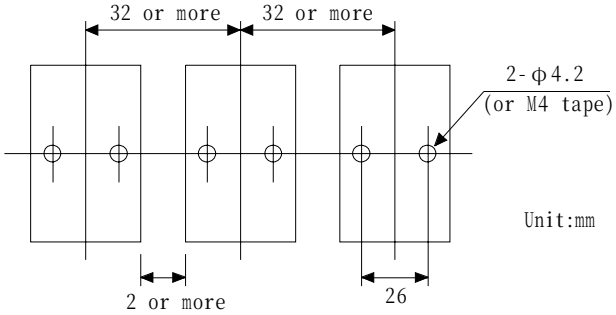
⑦Other Optional Specifications

Add Suffix (S).

■ Name of Parts

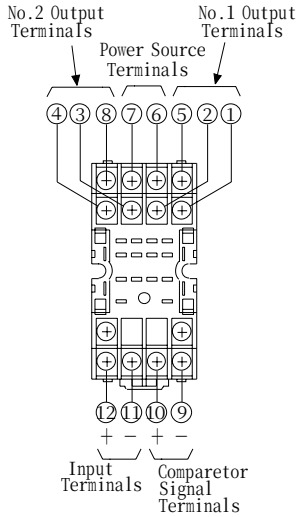


■ Wall Mounting Dimensions



■ Installation

Firstly, mount an attached socket onto the 35mm wide DIN rail or fix it to the wall with M4 screws. After completed the connections as instructed below, fix the relay unit to the socket turning by hand the fixing screws provided on the relay unit.
When removing the relay unit from the socket, unscrew the fixing screws unit they are loosen and pull the relay unit out from the socket.

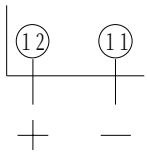


Optimum torque of fixing:
Socket fixing screws : 1.1~1.5N・m
Relay unit fixing screws : 0.1~0.14N・m

■ Connections

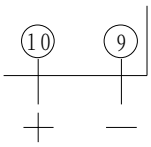
Measuring input, output, comparator signal and power supply terminals of this unit are M3.
Make firm and correct connections with crimp type terminal, etc.
Optimum torque of terminal screws: 0.46~0.62N・m
Note: Input terminals are provided only on the main units.

● Measuring Input Terminals (INPUT) ⑪, ⑫【Main Unit】



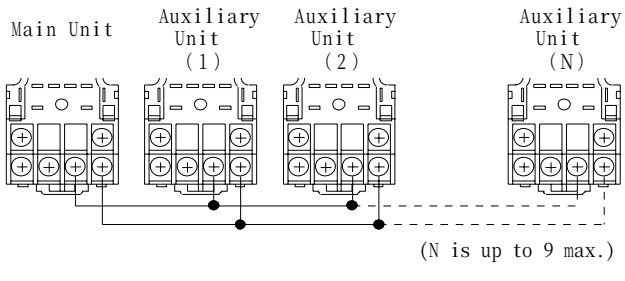
For the DC inputs, make a connection of measuring input with correct polarity.
If it is instructed to use the attached accessory, make a connection using it.
Arrange a cabling of measuring input line and power supply line as distant as possible from each other.
Parallel and close wiring of these two lines may cause malfunction of the relay.

● Comparator Signal Terminals (SIG.OUT, SIG.IN) ⑨, ⑩



【SIG.OUT is provided on the Main Unit and SIG.IN on the Auxiliary Unit】
The auxiliary unit receives a comparator signal from the main unit and makes comparator action.
Make a connection between the auxiliary unit and main unit with correct polarity, using a shield wire or twisted pair wires which run the shortest distance.

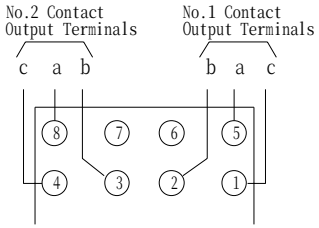
Maximum 9 auxiliary units (control of 20 points) can be used by connecting the comparator signal terminals of the main unit (SIG.OUT) and auxiliary unit (SIG.IN) in parallel.
Note: When the shield wire is used, connect the shield to the - (minus) side of the input terminals.



● **Output Terminals (OUTPUT) ①, ②, ③, ④, ⑤, ⑧【Common for Main and Auxiliary Unit】**

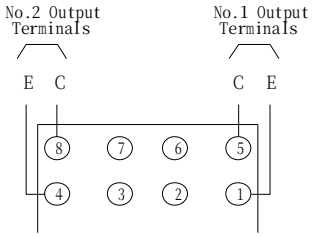
①Relay contact output type

Use a cable to suit the rated contact capacity.
When the relay control of higher capacity than the rated is required, provide an auxiliary relay externally.
When no power is connected:
a - c = NO, c - b = NC
In case of H setting, when the power is supplied and the measuring input signal exceeds the preset limit:
a - c = ON (conducted), c - b = OFF (open)
Contact capacities of relay output is AC250V-0.5A, DC30V-2A (resistive load).



②Open collector output type

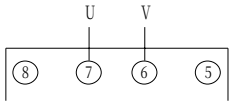
Use a cable to suit the rated contact capacity. In case of H setting, when the power is supplied and the measuring input signal exceeds the preset limit, a transistor is activated and C - E becomes ON.
Capacity of open collector output is DC50V-100mA.
The output is isolated from the input circuit.



● **Power Source Terminals (POWER SUPPLY) ⑥, ⑦【Common for Main and Auxiliary Unit】**

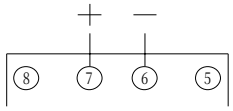
①AC power source type

Connect AC85~264V to the power source terminals.



②DC power source type

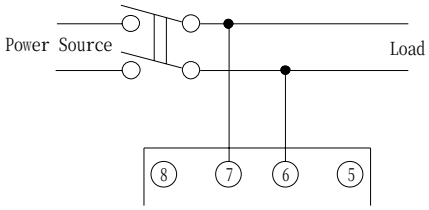
Connect DC20~30V to the power source terminals with correct polarity.



■ Functions

● **Power On Delay【Common for Main and Auxiliary Unit】**

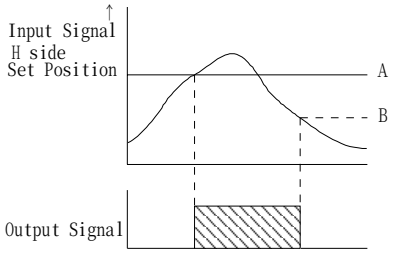
Power on delay is the function to stop the output signal for the preset time after the relay unit is powered on. So, supply the voltage to it from that of measurement line. (Delay time is preset to 0.5 sec. at the factory before delivery. When the longer delay time is required, make an adjustment with the power on delay adjustment on the side of the relay unit. It is adjustable within the range of 0.5~10 sec.)



● **Optional Specifications**

○Hysteresis【**Common for Main and Auxiliary Unit**】

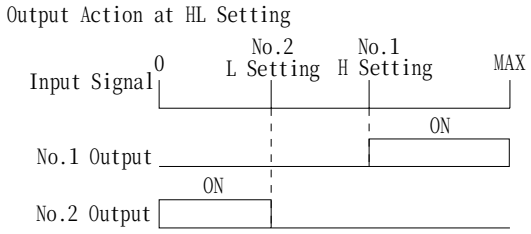
Hysteresis is the function to provide a certain width between ON/OFF. In case of H setting, the relation of input and output signals is as shown at the right.
The hysteresis width of the standard type is 0.5% or less, but the width ab. 1%~5% can alternatively ordered.



○Action Delay【**Common for Main and Auxiliary Unit**】

Action delay is the function to delay the output signal when the detection circuit is activated. It can prohibit an instantaneous alarm output caused by an instantaneous overload.
(Select the delay time ab. 1 sec. ~ 5 sec.)

■ Range of Output Action



■ Operation

Before starting operation, ensure that the input rate, power source voltage and wiring are correct.

Note: The specifications herein are as of July 2000.

■ Dimensions