# EX1N,1S

Ex1s2PT USER'S GUIDE
(Platinum temperature sensor PT100)

☛ This manual contains text, diagrams and explanations which will guide the reader in the correct installation and operation of the Ex1s2PT special function block.
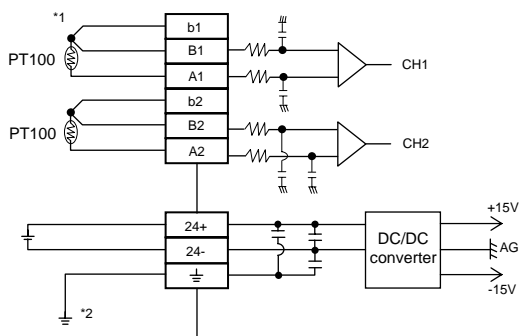
✳✳✳ Introduction ✳✳✳

1) The Ex1s2PT type analog input block (Hereafter referred to as the Ex1s2PT) converts 2 points PT100 of analog input values into digital values, and transfers them to the PLC main unit.

✳✳✳ External Dimensions ✳✳✳
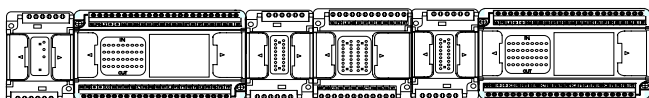

Unit : mm

87

90

39.6

48
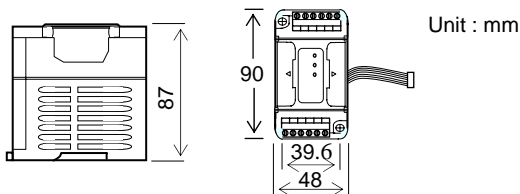
✳✳✳ Wiring ✳✳✳

*1 The analog input line, should separate it from other power lines or a lines easily induced.

*2 Make sure to connect the ⏚ terminal to the ⏚ terminal of the PLC main unit.

✳✳✳ Connection with PLC ✳✳✳

1) The blocks not occupy any points. Only connect 1pc of module.
2) Applicable PLC : Ex1s, Ex1n, Ex2n series V2.22 or more.
3) Ex1s2PT are connected with the cable at the left of the main unit.

Ex1s2PT	Ex1n32MR	Ex1n2DA	Ex1n16ER	Ex1n2DA	Ex1n32ER
	X00 -X17		X20-X27		X30 - X47
	Y00-Y17	Y20-Y37	Y40-Y47	Y50-Y67	Y70-Y107

✳✳✳ Specifications ✳✳✳

1. Environment specification

Item	Content
Directric Withstand voltage	500V AC 1min(Between analog input terminals and case)

Environmental specifications other than the above-mentioned are the same as the main unit of the Programmable controller. (Refer to the manual of the Programmable controller)

2. Power supply specification and isolation

Item	Content
Analog circuits	24V DC±10% 85mA (supplied from the External)
Digital circuits	5V DC 30mA (supplied from main unit)
Isolation	Photo-coupler isolation between analog and digital circuits.

3. Performance specifications

Item	Voltage input
Analog input	Platinum temperature PT100 sensor (100Ω)
Analog output	12bit binary, 11bit + 1 sign bit
Resolution	0.2 to 0.3°C or 0.36 to 0.54°F
A/D conversion time	1CH / 2 scan time

✳✳✳ Program Example ✳✳✳

```
M8002
 ─┤├───[MOV   K0      D8120] : communication
M8002                         function prohibited
 ─┤├───[MOV   K0      D8114] : CH1 offset value
       [MOV   K395    D8116] : rise 1°C, resistance
                              add 0.395Ω  α=0.00395
M8002
 ─┤├───[MOV   K0      D8115] : CH2 offset value
       [MOV   K395    D8117] : CH2 3950PPM/°C
                              i.e. α=0.00395
 X6
 ─┤├──────────(M8116) : 2PT CH1 enable flag
M8001
 ─┤├──────────(M8110) : CH1 degree Centigrade °C display
 X7
 ─┤├──────────(M8117) : 2PT CH2 enable flag
M8000
 ─┤├──────────(M8111) : CH2 degree Fahrenheit °F display
```

Measurement result stored into D8112(CH1) and D8113(CH2)

♦PT100 3950(PPM) : Per °C resistance increase amount is 3950-one millionth,

$$\triangle R = \frac{3950}{10^6} \times 100 = 0.395\Omega$$

i.e. PT100 rise 1°C, resistance add 0.395Ω. If use different items of resistance, only change this value.

Ex1s2PT-edoc0406v100b

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