

Thank you for purchasing Samwontech production. Please use after read instruction manual for safety. Free to contact to our sales Div. for Production Inquiry and After Service.
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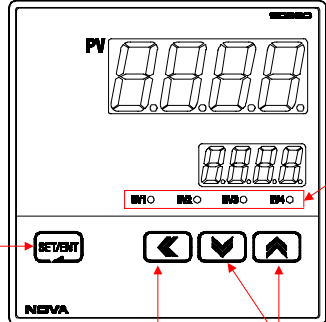
Safety Guide

The following safety symbols are used in this manual.

CAUTION If this symbol is marked on the product, the operator must investigate the explanation given in this manual to protect injury or death to personnel or damage to instrument.

1. Be sure to operate the controller installed on a panel to prevent electric shock.
2. Keep the input circuit wiring as far as possible away from power and ground circuit.
3. Do not mount front panel facing downward.
4. To prevent electric shock, be sure to turn off and the source circuit breaker before wiring.
5. The power consumptions are 100-240VAC, 50/60Hz, 10VAmx and operate without power switching in advance.
6. No work in wet hands(it caused electric shock)
7. Refer the way of grounding connection, however, keep away for grounding to Gas pipe, water pipe, lightning rod etc.

Control Keys and Display



- Used in switching between parameters or registering parameter settings.
- Pressing SET/ENT Key at least 3 sec. switches between an operating display and an operating parameter setting display

Lights on during EVENT occurs (fixed ALM)

Used when shifting position to modify value

- Used to change the value of parameters.
- Used to move between GROUP

Type & Suffix Code

| Model | Suffix Code | Description | Remark |
|-------------|-------------|----------------------|----------------|
| SD360 / 390 | - □ □ | Digital Indicator | |
| Type | 0 | Standard | |
| Power | 0 | 100 ~ 240VAC | |
| | 1 | 24VDC | |
| Options | /RET | Retransmission | *note1 |
| | /RS | RS422 / 485 | *note1 |
| | /ALM3 | RELAY Output 1 Point | *note2 |
| | /ALM4 | RELAY Output 1 Point | *note1, *note2 |

*note1 : RET, RS, ALM4 to be purchased separately

*note2 : It can't use at SD360

Specification

- PV/SP Data Display : each 4 digits ● Sampling Time : 250ms
- Indication Accuracy : ±0.2% of FS
- Retransmission Output : 4 ~ 20mADC (PV) or Loop power supply
- Communication Protocols : PC-Link, MODBUS(ASCII, RTU)
- Power Supply and Consumption : 100 ~ 240VAC, 50 ~ 60Hz / Max 6W below

Sensor

- PV Input : Universal Input(1 Point)
- Type of Input
T/C : K, J, E, T, R, B, S, L, N, U, W, Platinel II
RTD : Pt100, JPt100
DCV : -10 ~ 20mV, 0 ~ 100mV, 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA, with external 250Ω, 500Ω)

Alarm

- Alarm Capacity : STD 2 Points, Max 4 Points *note3
- Alarm Type : 8 types(High/Low Temp Limit, Deviation Limit etc)

*note3 : SD360 - Max 2 Points

Safety & EMC

- Safety : EN61010-1, UL61010C-1, CAN/CSA-C22.2 No.10101-92, Category II
- EMC : EMI(Emission) - EN61326, ClassA
EMS(Immunity) - EN61326

PARAMETER Table

SUB GROUP

| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|-------------|--------------------------------|------|---------|--------|
| US1 | User Screen | OFF, D-Register Number(1~1299) | ABS | OFF | Always |
| US2 | User Screen | OFF, D-Register Number(1~1299) | ABS | OFF | Always |

CTL GROUP

| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|--------------------------|--|------|------------|--------|
| PV.LO | PV MIN.Value | EU(-5.0~105.0%) : Read Only | EU | EU(100.0%) | Always |
| PV.HI | PV MAX.Value | EU(-5.0~105.0%) : Read Only | EU | EU(0.0%) | Always |
| M.CLR | MIN MAX CLEAR | OFF, ON | ABS | OFF | Always |
| DSP.H | Display High Limit | EU(-5.0 ~ 105.0%) : However, DSP.L<DSP.H | EU | EU(105.0%) | Always |
| DSP.L | Display Low Limit | EU(-5.0 ~ 105.0%) : However, DSP.L<DSP.H | EU | EU(-5.0%) | Always |
| LOCK | Key Lock | OFF, ON(No Editing) | ABS | OFF | Always |
| U.PWD | User Password | 0 ~ 9999 | ABS | 0 | Always |
| INIT | Parameter Initialization | OFF, ON | ABS | OFF | Always |

IN GROUP

| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|---------------------------------|---|------|--------------|----------|
| IN-T | Input Type | refer to "Type of Input Sensor" | ABS | TC.K1 | Always |
| IN-U | Display Range | ℃, °F | ABS | ℃ | T/C, RTD |
| IN.RH | Max. Value of Measurement Range | Within DEF.Range refer to "Type of Input Sensor" However, INRH > INRL | EU | EU(100%) | Always |
| IN.RL | Min. Value of Measurement Range | | EU | EU(0.0%) | Always |
| IN.DP | Decimal Point Position | 0 ~ 3 | ABS | 1 | mV, V |
| IN.SH | Max Value of Input Scale | Within -1999 ~ 9999 however, INSH > INSL The Decimal Point Position is rely on the value of IN.DP | ABS | 100.0 | mV, V |
| IN.SL | Min Value of Input Scale | | | 0.0 | mV, V |
| IN.FL | PV Filter | OFF, 1 ~ 120 | sec | OFF | Always |
| BSL | BOU SEL | OFF, UP, DOWN | ABS | UP (DCV=OFF) | Always |
| BS | Bias Value | EUS(-100.0 ~ 100.0%) | ABS | 0 | Always |
| RSL | RJC SEL | TC, TC.RJ, RJC | ABS | TC.RJ | T/C |

Type of Input Sensor

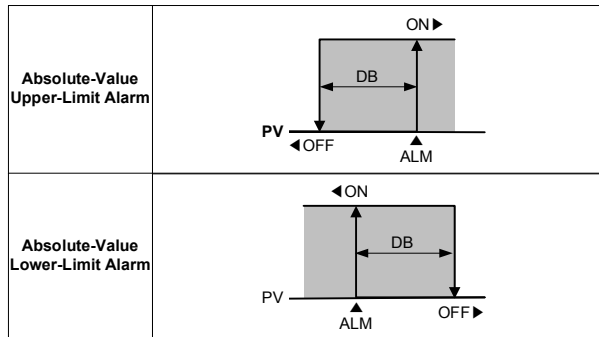
*display range : -5% ~ +105%

| No. | TYPE | Temp.Range(℃) | Temp.Range(°F) | Group | DISP |
|-----|-------------|----------------|----------------|-------|-------|
| 1 | K1 | -200 ~ 1370 | -300 ~ 2500 | T/C | TC.K1 |
| 2 | K2 | -199.9 ~ 999.9 | 0 ~ 2300 | | TC.K2 |
| 3 | J | -199.9 ~ 999.9 | -300 ~ 2300 | | TC.J |
| 4 | E | -199.9 ~ 999.9 | -300 ~ 1800 | | TC.E |
| 5 | T | -199.9 ~ 400.0 | -300 ~ 750 | | TC.T |
| 6 | R | 0 ~ 1700 | 32 ~ 3100 | | TC.R |
| 7 | B | 0 ~ 1800 | 32 ~ 3300 | | TC.B |
| 8 | S | 0 ~ 1700 | 32 ~ 3100 | | TC.S |
| 9 | L | -199.9 ~ 900.0 | -300 ~ 1600 | | TC.L |
| 10 | N | -200 ~ 1300 | -300 ~ 2400 | | TC.N |
| 11 | U | -199.9 ~ 400.0 | -300 ~ 750 | | TC.U |
| 12 | W | 0 ~ 2300 | 32 ~ 4200 | | TC.W |
| 13 | Platinel II | 0 ~ 1390 | 32 ~ 2500 | | TC.PL |
| 14 | PIA | -199.9 ~ 850.0 | -300 ~ 1560 | RTD | PTA |
| 15 | PtB | -199.9 ~ 500.0 | -199.9 ~ 999.9 | | PTB |
| 16 | PtC | -150.0 ~ 150.0 | -199.9 ~ 300.0 | | PTC |
| 17 | JPtA | -199.9 ~ 500.0 | -199.9 ~ 999.9 | | JPTA |
| 18 | JPtB | -150.0 ~ 150.0 | -199.9 ~ 300.0 | | JPTB |
| 19 | 0.4~2.0V | 0.400 ~ 2.000V | | DCV | 2V |
| 20 | 1~5V | 1 ~ 5V | | | 5V |
| 21 | 0~10V | 0 ~ 10V | | | 10V |
| 22 | -10~20mV | -10 ~ 20mV | | | mV |
| 23 | 0~100mV | 0 ~ 100mV | | 100M | |

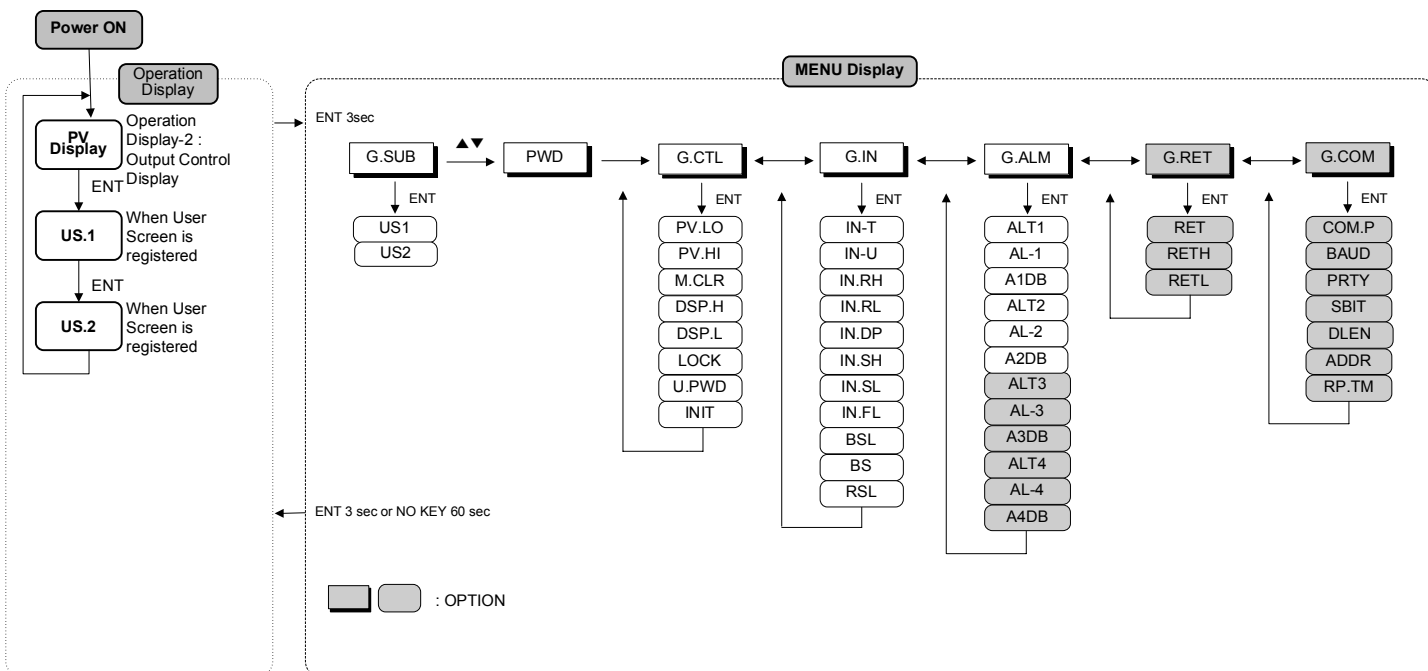
Type of Alarm

| No. | Type | Output Direct | | Standby | | Display Data |
|-----|----------------------------------|---------------|-----|---------|----|--------------|
| | | For | Rev | Off | On | |
| 1 | Absolute-Value Upper-Limit Alarm | ○ | | ○ | | AH.F |
| 2 | Absolute-Value Lower-Limit Alarm | ○ | | ○ | | AL.F |
| 3 | Absolute-Value Upper-Limit Alarm | | ○ | ○ | | AH.R |
| 4 | Absolute-Value Lower-Limit Alarm | | ○ | ○ | | AL.R |
| 5 | Absolute-Value Upper-Limit Alarm | ○ | | | ○ | AH.FS |
| 6 | Absolute-Value Lower-Limit Alarm | ○ | | | ○ | AL.FS |
| 7 | Absolute-Value Upper-Limit Alarm | | ○ | | ○ | AH.RS |
| 8 | Absolute-Value Lower-Limit Alarm | | ○ | | ○ | AL.RS |

Alarm Operation



Parameter Map



ALARM GROUP

| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|-------------------|--------------------------|------|------------|---------------------|
| ALT1 | Alarm Type 1 | refer to "Type of Alarm" | ABS | AH.F | Always |
| AL-1 | Set value of ALT1 | EU(-100.0 ~ 100.0%) | EU | EU(100.0%) | Not Deviation Alarm |
| A1DB | Alarm 1 Hys | EUS(0.0 ~ 100.0%) | EUS | EUS(0.5%) | Always |
| ALT2 | Alarm Type 2 | refer to "Type of Alarm" | ABS | AH.F | Always |
| AL-2 | Set value of ALT2 | EU(-100.0 ~ 100.0%) | EU | EU(100.0%) | Always |
| A2DB | Alarm 2 Hys | EUS(0.0 ~ 100.0%) | EUS | EUS(0.5%) | Always |
| ALT3 | Alarm Type 3 | refer to "Type of Alarm" | ABS | AH.F | Option |
| AL-3 | Set value of ALT3 | EU(-100.0 ~ 100.0%) | EU | EU(100.0%) | Option |
| A3DB | Alarm 3 Hys | EUS(0.0 ~ 100.0%) | EUS | EUS(0.5%) | Option |
| ALT4 | Alarm Type 4 | refer to "Type of Alarm" | ABS | AH.F | Option |
| AL-4 | Set value of ALT4 | EU(-100.0 ~ 100.0%) | EU | EU(100.0%) | Option |
| A4DB | Alarm 4 Hys | EUS(0.0 ~ 100.0%) | EUS | EUS(0.5%) | Option |

© ALM3,4=SD360 : can't use.

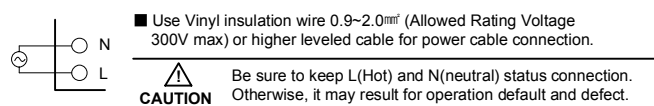
TRANS GROUP

| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|--------------------------------------|---|------|---------|--------|
| RET | Select RET | LPS, PV | ABS | PV | Option |
| RETH | High-Limited Value of Retransmission | T/C, RTD : INRH ~ INRL mV, V : INSH ~ INSL However, RETH > RETL | EU | INRH | Option |
| RETL | Low-Limited Value of Retransmission | | EU | INRL | |

COMM GROUP

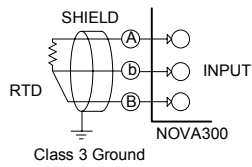
| Symbol | Parameter | Setting Range | Unit | Initial | Remark |
|--------|------------------------|--------------------------------------|------|---------|--------|
| COM.P | Communication Protocol | PCC0, PCC1, MODBUS ASCII, MODBUS RTU | ABS | PCC0 | Option |
| BAUD | Baud Rate | 600, 1200, 2400, 4800, 9600, 19.2K | ABS | 9600 | Option |
| PRTY | Parity | None, Even, Odd | ABS | None | Option |
| SBIT | Stop Bit | 1, 2 | ABS | 1 | Option |
| DLEN | Data Length | 7,8(SKIP in MODBUS) | ABS | 8 | Option |
| ADDR | Address | 1 ~ 99(Max 31 can connect) | ABS | 1 | Option |
| RP.TM | Response Time | 0 ~ 10(x10ms) | ABS | 0 | Option |

Power Cable Connection

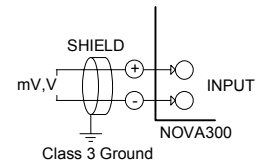


ANALOG INPUT Connection

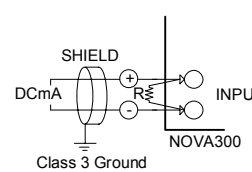
1. RTD INPUT



2. DC VOLTAGE INPUT

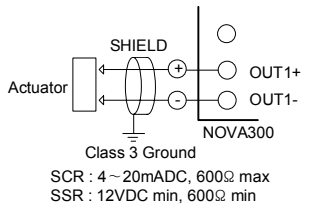


3. DC CURRENT INPUT

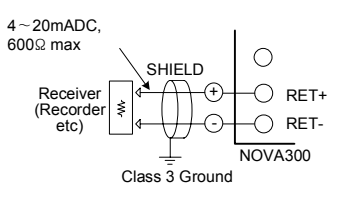


ANALOG OUTPUT Connection

1. SSR / SCR



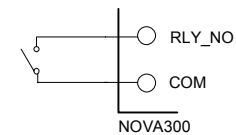
2. RET



CAUTION To prevent electric shock, be sure to turn off the NOVA300 controller and the source circuit breaker before connection/disconnection of the actuator as well as wiring.

CAUTION To prevent electric shock, be sure to turn off the Nova controller and the source circuit breaker before connection/disconnection of the receiver as well as wiring.

RELAY Connection



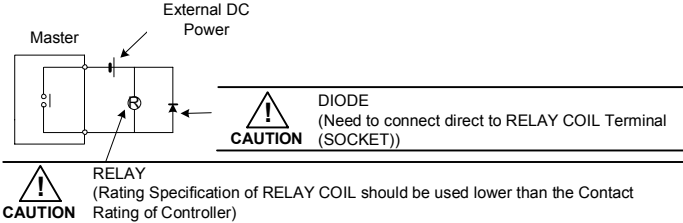
CAUTION To protect electric shock, be sure to turn off the NOVA300 controller and the source circuit breaker before wiring.

Use an Auxiliary RELAY

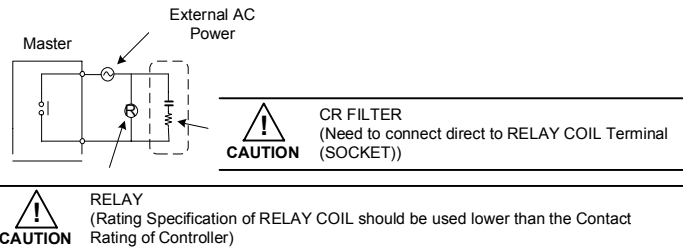
■ When using an auxiliary relay or inductance load (L) such as solenoid, be sure to insert a CR filter(for AC) or diode (for DC) in parallel as a surge-suppressor circuit to reject sparks, preventing malfunction or damage.

- Recommended CR FILTER
- ▶ Seong Hoo Electronics : BSE104R120 25V (0.1μ+120Ω)
 - ▶ HANA PARTS CO. : HN2EAC
 - ▶ Songmi Eolectic Co.,Ltd : CR UNIT 953, 955 etc
 - ▶ Jiwo Electric Co.,Ltd : SKV, SKVB etc
 - ▶ Shinyoug Communications Co.,Ltd : CR-CFS, CR-U etc

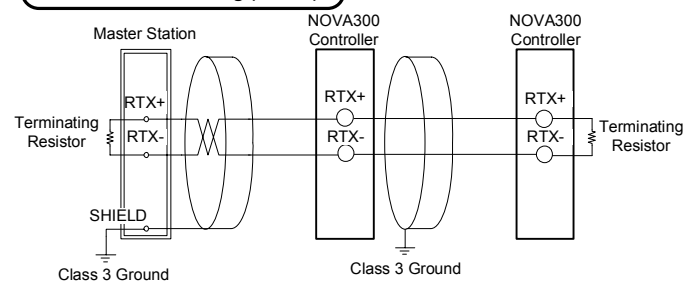
1. In case of DC RELAY



2. In case of AC RELAY



Communication Wiring (RS485)



■ Up to 31 slave controllers(NOVA300 series instruments equipped with communication option) can be multidrop-connected.
■ Be sure to connect terminating resistors(220Ω, 1/4W) to slave and master controllers at communication-channel ends as shown above.

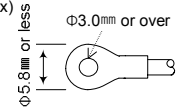
CAUTION To prevent electric shock, be sure to turn off the NOVA300 controller and source circuit breaker before wiring.

Power Cable Specification

Vinyl insulated wire 0.9~2.0mm² (Allowed Rating Voltage 300V max)

Terminal Specification

Use M3.5 screw-compatible crimp-on terminals with insulating sleeve as shown below.

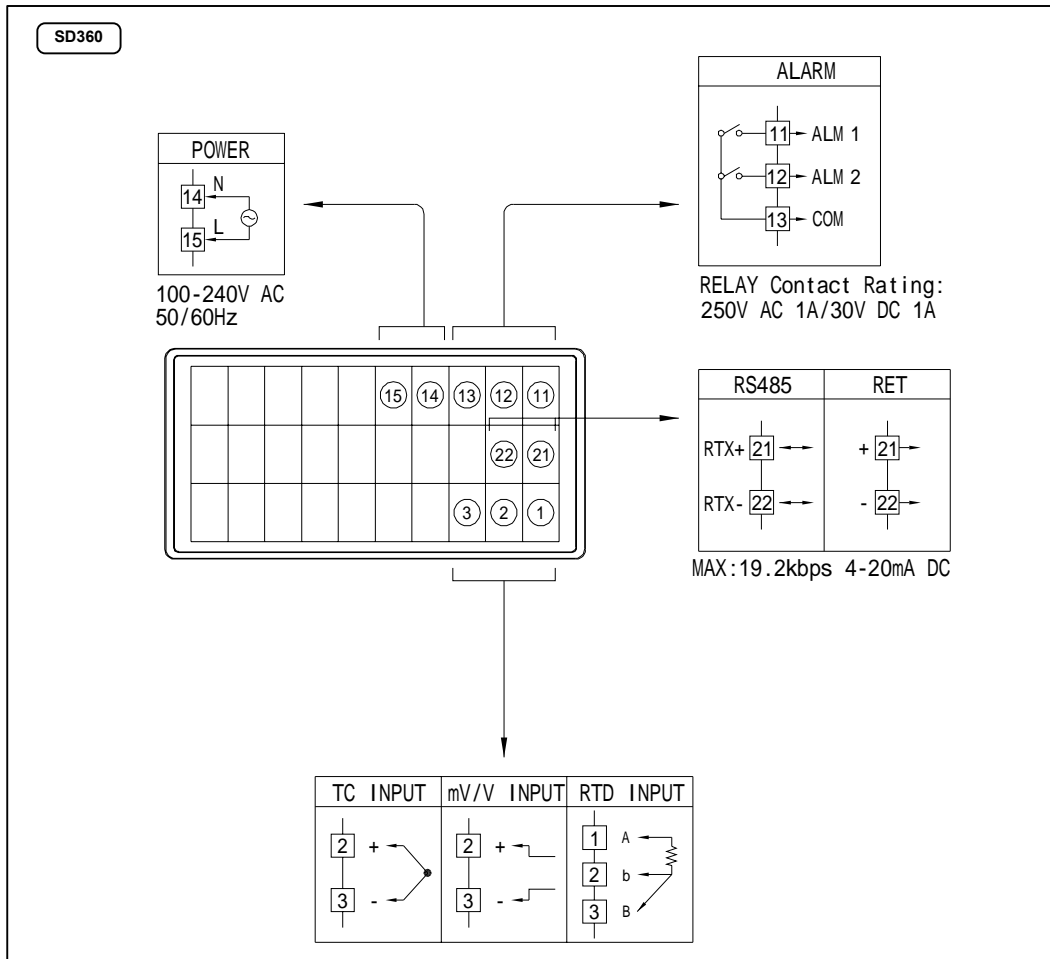
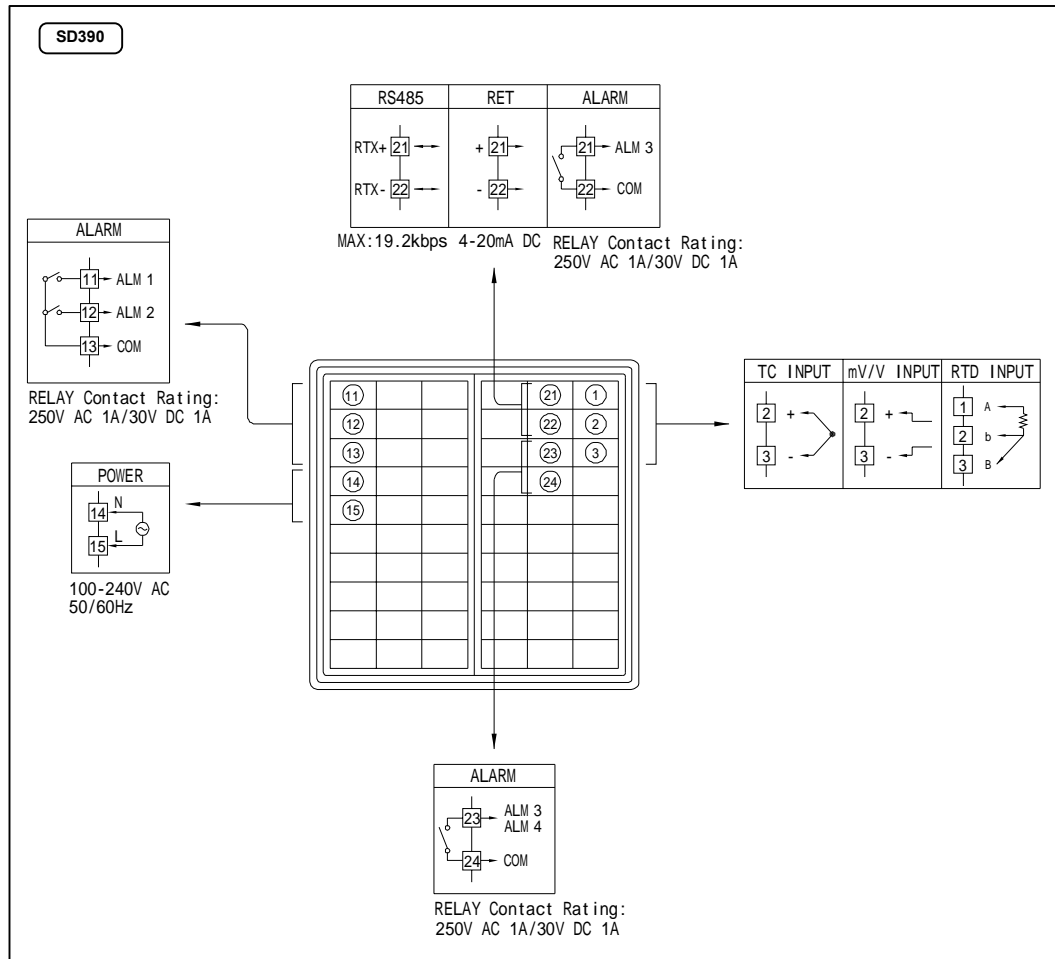


CAUTION Never touch the terminal in the rear panel to prevent electric shock when power is supplied to the controller, and Be sure to turn off the electric power before wiring.
Bind the wires connected to the controller terminals neatly together in order to prevent electromagnetic wave radiation.

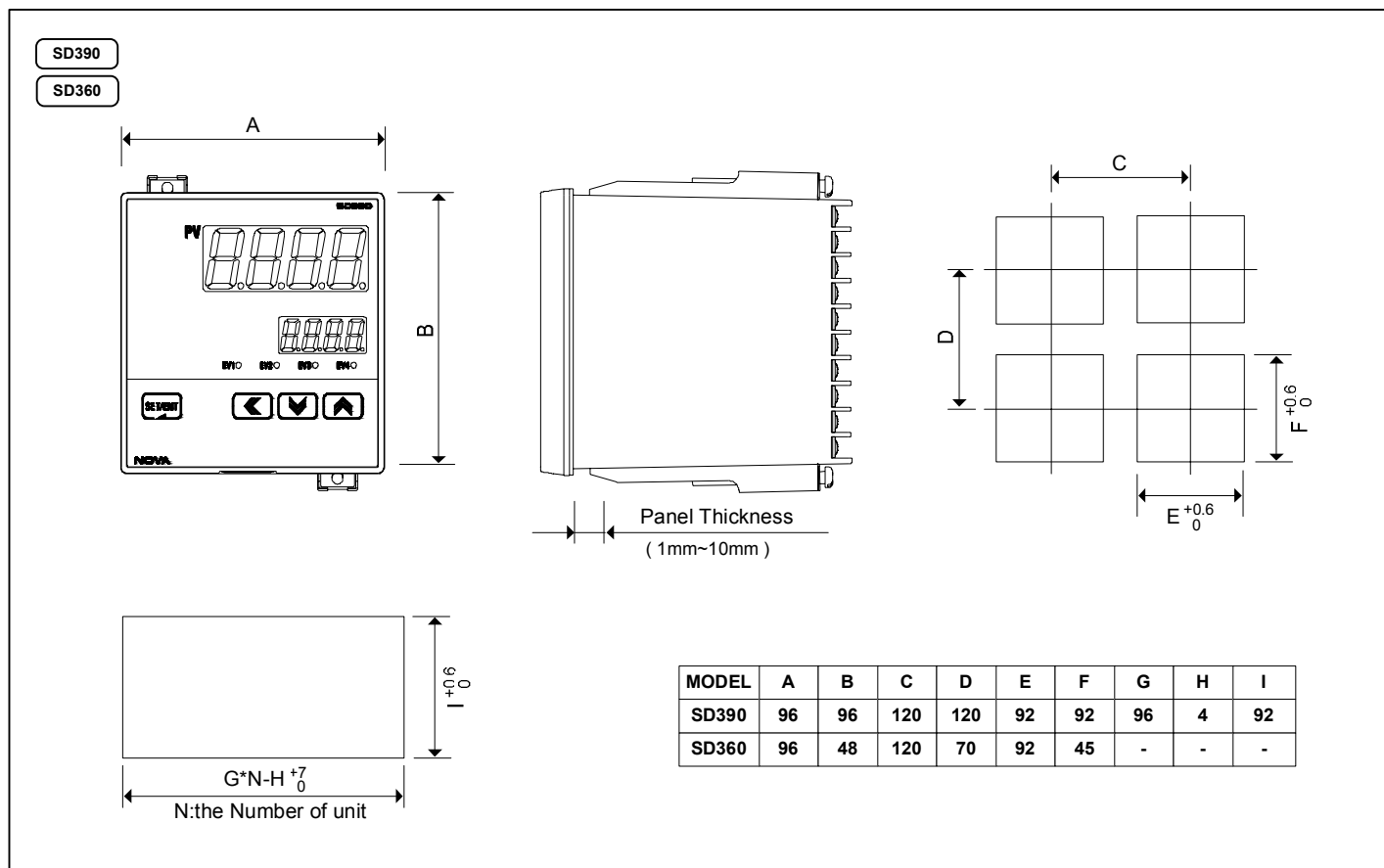
Display Error and Correction

| Display ERROR | ERROR Contents | Correction |
|---------------------------|------------------------|------------------|
| E.SYS | EEPROM, DATA Loss | Ask repair |
| E.RJC | RJC SENSOR Failure | Ask repair |
| Flash Decimal point of SP | Communication Failure | Comm Cable CHECK |
| S.OPN | SENSOR Open | SENSOR CHECK |
| E.AT | AT Time Out (27h over) | PROCESS CHECK |

Terminal Arrangement and External wiring



Dimension and Panel Cutout



How to install Mount

