MAco

Wall Mount Type Large Display
Universal Input & Alarms

SDM-700
USER MANUAL

SDM 700 is large indicator can be used in various processes such as temperature, humidity, pressure etc.

Two independent alarm outputs and transmit outputs, power supply for external transmitters and RS485.

It is the best indicator that can be applied to complex field needs.

Sanup
In Harmony with Machines

SANUP ELECTRIC
http://www.sanup.com

● Please keep these instructions and review before using this controller.
● This instruction manual uses WARNING and CAUTION as signal words for safety.

⚠ WARNING WARNING indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

1. In case of using this unit with machineries (warehouse, medical equipments, vehicle, train, airplane, nuclear power ot safety devices etc.), it requires installing fall-safe device.
▶ It may result in serious damage, fire or human injury.
2. Use a rated voltage to prevent damage or trouble.
▶ It may result in fire.
3. Check the number of terminal when connect each line and signal input.
▶ It may cause fire or trouble.
4. Do not turn on the power until the wiring completed.
▶ It may cause electric shock.
5. Do not repair, wiring or checkup when electric power on.
▶ It may cause electric shock.
6. Installation the controller where there is no dust, corrosive or explosive gas, direct ray of the sun, mechanical vibration or shock present.
▶ It may cause fire or explosive.
7. This controller must be mounted pannel.
▶ It may cause electric shock.
8. Do not repair beyond of authorized technician.
▶ It may cause trouble.

⚠ CAUTION CAUTION indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury and at other times or serious injury. I may also be used to alert against unsafe practice.

1. Ensure the surrounding ambient operating temperature is 0~50℃.
▶ It may cause fire or wrong operation.
2. Ensure the power supply for the controller does not fluctuate. Main supply voltage fluctuation not exceed ±10% of the normal voltage.
▶ It may cause fire.
3. This controller shall not be used outdoors.
▶ It might shorten the life cycle or given an electric shock.
4. When wiring connection, #20AWG (0.5mm2) should be used and screw bolt on terminal block with 0.74N.m strength.
▶ It may result in mulfunction or error.
5. Keep the controller away from high current and voltage circuits. The controller and connection wires (esp. compensation conductors and RTD lead wires) should be kept approximately 30cm away from high electric circuit to limit the possible affect of noise.
▶ It may cause display fluctuation or error.
6. Do not use a place where temperature fluctuate or icing occurs. It may cause fire, explosive or error.
7. In cleaning the controller, do not use water or an oil-based detergent.
▶ It might cause an electric shock or fire that will result in damage to the product.
8. Do not inflow dust or dregs into inside of this controller.
▶ It may cause fire or trouble.
9. Installation Category II. Pollution Degree 2. Altitude over 0~2000m use.

1 Features

The SDM 700 large digital alarm indicator is a large indicator that can be used to enrich the convenience functions required in various industrial fields and to keep the process constant. 1.8 "~ 8.0" character size, 1 channel, 2 channel basic specification and multi-channel order specification is possible.

● Universal Input ——————————— K.J.E.T.C.B.R.S.Pt100Ω.V/mA dc
● Peak Hold ——————————— Peak Hold Check
● TX Power ——————————— 17V 30mAdc
● Alarms ——————————— 2 Point Alarms
● 4~20mA RET. Out ——————————— PV Retransmission Output
● RS485 MODBUS Interface ——————————— ASCII

2 Ordering Codes

MODEL		-	CODE					SPEC.
SDM	700T		□	□	□	□	□	1 Channel Display
	700TH							2 Channel Display
FND SIZE	1.8"							26.0 X 45.0 X 4.2 (mm)
	2.3"							32.8 X 56.9 X 6.0 (mm)
	3.0"							43.5 X 76.8 X 8.0 (mm)
	4.0"							60.0 X 100.0 X 11.0 (mm)
	6.0"							87.5 X 152.4 X 16.0 (mm)
	8.0"							117.0 X 200.0 X 21.0 (mm)
	Basic FND size is 2.3" for SDM700T and 1.8" for SDM700TH.							
Input Ch1		U						Universal (see input table)
Range Ch1			0U					Full Scale
Input Ch2		U						Universal (see input table)
Range Ch2			0U					Full Scale
		mA, Vdc User Configurable						
Power				F				100-240V 50/60Hz
Optional					N			None
					2			RS 485 Interface

3 Specifications

Items		Specifications
Power	Input Power	100~240Vac (90~264Vac)
	Frequency	50/60Hz
Input	Signal Input	T.C: K.J.E.N.C.T.R.S.B RTD:Din Pt100/Pt100Ω Vdc: 1-5V.0-5Vdc 4-20mA(250Ω use Res.)
	Scan Time	130ms
	Impedance	T.C: 1MΩ
	Accuracy	T.C: ±0.3%+1digit or 3℃
		RTD/V. mAdc: ±0.2%+1digit
Output	Alarms	250Vac. 1A(R load)
	Retransmission	600Ω max. Programmable scale.
	TX Power	17V 30mAdc max.
	Interface	RS 485 MODBUS ASCII (optional)
Installation Condition	Continuous Vibration	5-14Hz: forward width 1.2m max. 4-150Hz: 4.9m/cm2
	Vibration	14.7m/cm2 15sec. max. each 3 direction
	Shock	147m/cm2 11msec. max. 6 direction 3 times
Operating Condition	Temperature	0~50℃
	Humidity	35~85%RH. No condensation.
	Influence Magnetic	400AT/m max.
	Warm-Up Time	30min min.
Operating Environ.	Thermocouples	±1μV/℃ or ±0.01%/℃ of F.S
	RTD	±0.05Ω/℃
	Analog Output	±0.05%/℃ of F.S
Storage	Temperature	-25~70℃
	Humidity	5~95%RH. No condensation.

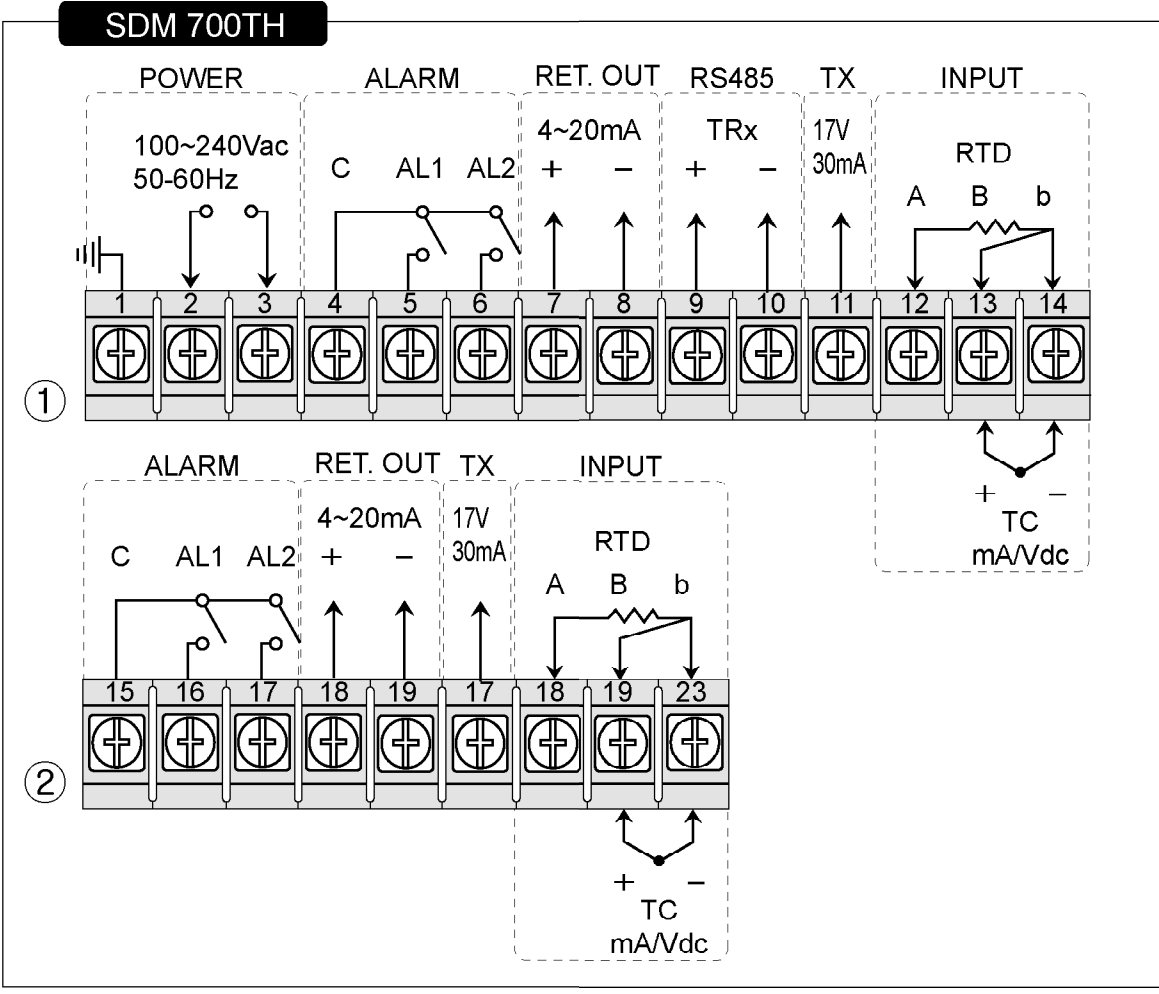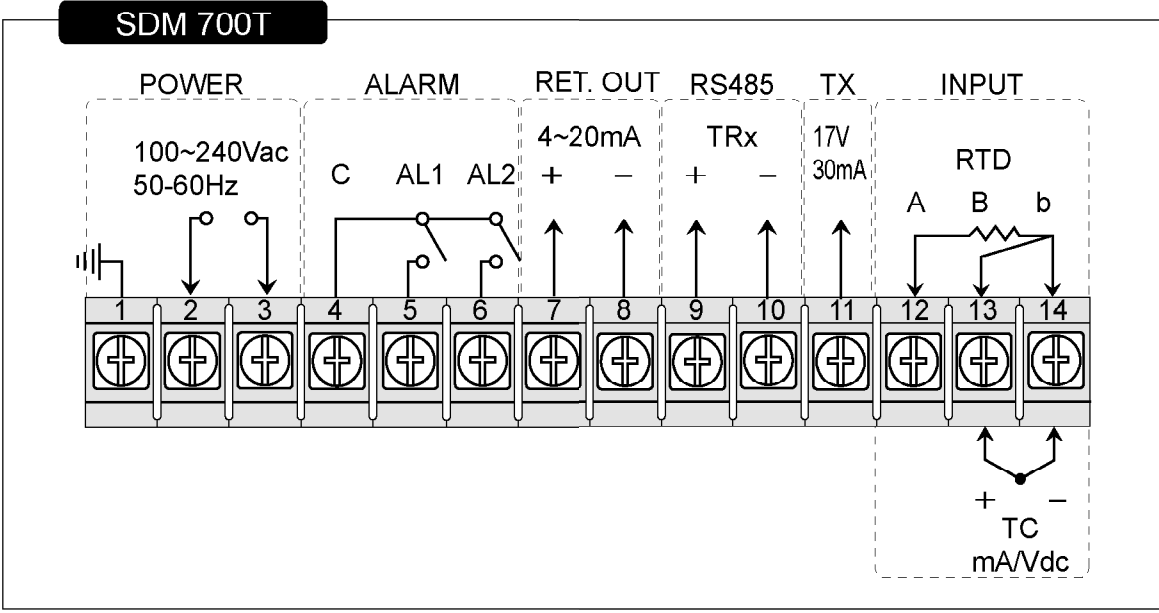Note This specifications are subject to change without notice.

Installation Guidelines

1. Ensure the operating temperature is 0~50℃.
   and humidity is 35~85%RH.
2. Ensure the supply electric power does not fluctuate greatly.
3. Install the controller where there is no dust, corrosive or explosive gas present.
4. Install the controller where there is no risk of mechanical vibration or shock.
5. Keep the controller away from high current and voltage. The controller and
   connection wires should be kept about 30cm (12") away from high current or
   high voltage line to limit the possible affects of noise.

Installation Procesure

1. Make a panel cutout of each size. When installing more than two controllers
   parallel to each other, keep enough distance between the panel cutouts.
   (refer to above drawing)
2. Insert the controller into the panel cutout.
3. Insert a mounting bracket into both side of the controller and tighteen the screws.
   (about 14.7Nm)

4 Wirning

SDM 700T

	POWER		ALARM			RET. OUT		RS485		TX		INPUT	

POWER: 100~240Vac 50-60Hz

ALARM: C AL1 AL2

RET. OUT: 4~20mA + −

RS485: TRx + −

TX: 17V 30mA

INPUT: RTD A B b

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

+ − TC mA/Vdc

SDM 700TH

POWER: 100~240Vac 50-60Hz

ALARM: C AL1 AL2

RET. OUT: 4~20mA + −

RS485: TRx + −

TX: 17V 30mA

INPUT: RTD A B b

① | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

+ − TC mA/Vdc

ALARM: C AL1 AL2

RET. OUT: 4~20mA + −

TX: 17V 30mA

INPUT: RTD A B b

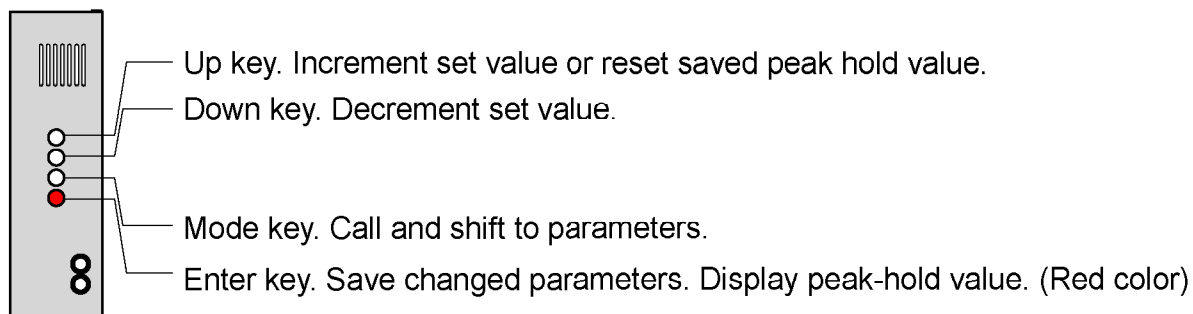② | 15 | 16 | 17 | 18 | 19 | 17 | 18 | 19 | 23 |

+ − TC mA/Vdc

Note
1. Apply power after all wiring is completed. There is a danger of electric shock.
2. If the ground is incomplete, the instrument may malfunction due to noise, or unnecessary electromagnetic waves can occur.
3. There is a fuse for circuit protection inside the product.

5 Set Parameters

Set Switch

Use the function setting keys on the right side of the product to call and set each variable.

Up key. Increment set value or reset saved peak hold value.
Down key. Decrement set value.

Mode key. Call and shift to parameters.
Enter key. Save changed parameters. Display peak-hold value. (Red color)

SDM700T : 1ch DISPLAY

Sign	Parameters	Functions	Int. Value
AL-1	Alarm 1	Set alarm 1 value	
AL-2	Alarm 2	Set alarm 2 value	
PASS	PASS	Set password for entering to parameter group PASS=5	0
InPt	Input Signal	Set input signal. See input table.	K-Type T.C
Unit	Uniy	Set unit for temperature. (℃/℉)	℃
dP	Decimal Point	mA. V input only.	0
SC-H	Scale High	mA. V input only. -1999~9999 SC-H>SC-L	100
SC-L	Scale Low		0
ALS1	Alarm 1 Mode	Set alarm 1 mode. (See alarm table)	High alarm
HYS1	Alarm 1 Hysteresis	Set alarm1 ON-OFF dead-band.	1
ALS2	Alarm 2 Mode	Set alarm 2 mode. (See alarm table)	Standby high
HYS2	Alarm 2 Hysteresis	Set alarm2 ON-OFF dead-band.	1
t-H	Retransmission High	Set PV retransmission scale high/low. (Limited input range)	1370℃
t-L	Retransmission Low		-100℃
FILt	Input Filtering	Set time of signal input. (0~60sec.)	1
InS	Correction PV	Set correction value. (-100.0~100.0)	0

PASS 15: Optional Parameters

Sign	Parameters	Functions	Int. Value
AddS	Address	Set address for interface. 1~31.	0
SPEd	Speed	Interface speed. 2400/4800/9600bps	9600 bps
PArY	Parity	Parity	none
CdLY	Delay Response	Set delay time. 1~3	1
LddF	Parameter	Initialize parameters. Set to 123.	0

SDM700TH : 2ch DISPLAY

Sign	Parameters	Functions	Int. Value
ALA1	1ch alarm 1	Set alarm 1 value of channel 1.	
ALA2	2ch alarm 1	Set alarm 2 value of channel 1.	
ALb1	1ch alarm 2	Set alarm 1 value of channel 2.	
ALb2	2ch alarm 2	Set alarm 2 value of channel 2.	
PASS	PASS	Set password for entering to parameter group. **Set to 5 for ch1 and 10 for ch2**.	0
Set to Channel 1: PASS 5			
InPt	Input Signal	Set input signal. See input table.	K-Type T.C
Unit	Uniy	Set unit for temperature. (℃/℉)	℃
dP	Decimal Point	mA. V input only.	0
SC-H	Scale High	mA. V input only. -1999~9999 SC-H>SC-L	100
SC-L	Scale Low		0
AL51	Alarm 1 Mode	Set alarm 1 mode. (See alarm table)	High alarm
HY51	Alarm 1 Hysteresis	Set alarm1 ON-OFF dead-band.	1
AL52	Alarm 2 Mode	Set alarm 2 mode. (See alarm table)	Standby high
HY52	Alarm 2 Hysteresis	Set alarm2 ON-OFF dead-band.	1
t-H	Retransmission High	Set PV retransmission scale high/low. (Limited input range)	1370℃
t-L	Retransmission Low		-100℃
FILt	Input Filtering	Set time of signal input. (0~60sec.)	1
InS	Correction PV	Set correction value. (-100.0~100.0)	0
Set to Channel 2: PASS 10			
I.nPt	Input Signal	Set input signal. See input table.	K-Type T.C
U.nit	Uniy	Set unit for temperature. (℃/℉)	℃
d.P	Decimal Point	mA. V input only.	0
S.C-H	Scale High	mA. V input only. -1999~9999 SC-H>SC-L	100
S.C-L	Scale Low		0
A.L51	Alarm 1 Mode	Set alarm 1 mode. (See alarm table)	High alarm
H.Y51	Alarm 1 Hysteresis	Set alarm1 ON-OFF dead-band.	1
A.L52	Alarm 2 Mode	Set alarm 2 mode. (See alarm table)	Standby high
H.Y52	Alarm 2 Hysteresis	Set alarm2 ON-OFF dead-band.	1
t.-H	Retransmission High	Set PV retransmission scale high/low. (Limited input range)	1370℃
t.-L	Retransmission Low		-100℃
F.ILt	Input Filtering	Set time of signal input. (0~60sec.)	1
I.nS	Correction PV	Set correction value. (-100.0~100.0)	0

Note To distinguish between channels 1 and 2, each parameter in channel 2 is marked ● by the first character after the parameter.

PASS 15: Optional Parameters

Sign	Parameters	Functions	Int. Value
Add5	Address	Set address for interface. 1~31.	0
SPEd	Speed	Interface speed. 2400/4800/9600bps	9600 bps
PAry	Parity	Parity	none
CdLY	Delay Response	Set delay time. 1~3	1
LddF	Parameter	Initialize parameters. Set to 123.	0

Note
* Delay Response: Set to 1 then delay 4~54msec.
    Set to 2 then delay 54~104msec.
    Set to 3 then delay 104~154msec.
*Parameter Initialize: Set to 123 and enter then parameters will be change to factory set value.
*Alarms are operating as independent.
*For call to peak-hold value, touch ENT key 3sec. over.

Input Table

SIGN	INPUT	RANGE ℃	RANGE ℉
H-tc	K-Type TC	-100~1370℃	-148~2498°F
J-tc	J-Type TC	-100~950℃	-148~1742°F
E-tc	E-Type TC	-100~750℃	-148~1382°F
n-tc	N-Type TC	-100~1300℃	-148~2372°F
C-tc	C-Type TC	0~2300℃	32~4172°F
t-tc	T-Type TC	-200~400℃	-328~752°F
H.1tc	K1-Type TC	-100.0~400.0℃	-148~752°F
r-tc	R-Type TC	-0~1760℃	32~3200°F
5-tc	S-Type TC	-0~1760℃	32~3200°F
b-tc	B-Type TC	-0~1800℃	32~3272°F
JPt	JIS Pt100Ω	-200~600℃	-328~1112°F
dPt	DIN Pt100Ω	-200~600℃	-328~1112°F
JPt1	JIS Pt100Ω	-200.0~600.0℃	-328~1112°F
dPt1	DIN Pt100Ω	-200.0~600.0℃	-328~1112°F
1-5	1~5Vdc		
0-5	0~5V/0~10Vdc		

Alarm Table

| Alarm Mode	AL 1	AL 2	Notice
None	- - - -	- - - -	
High Alarm	- H 1 -	- H 1 -	
Standby Low Alarm	- 5 H -	- 5 H -	
High Alarm	- L 0 -	- L 0 -	
Standby Low Alarm	- 5 L -	- 5 L -	

Note Alarms are operating as independent.

7 Peak Hold Display

Use the ENTER key to turn ON / OFF the peak hold function.
Press the Up key for more than 2 seconds to reset the stored peak value.
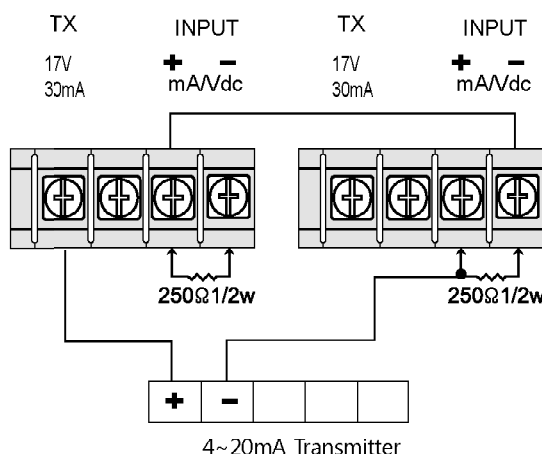If not reset peak values, below the stored peak value will be not displayed.

In the peak value indication state, the indicator flashes to distinguish it from the PV indication.
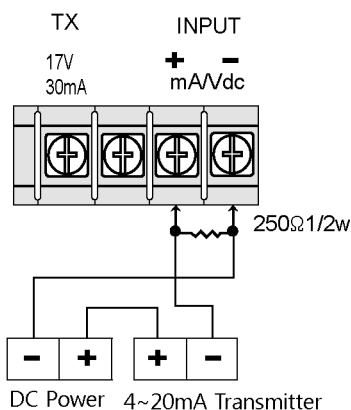
8 Input Wiring

1. 4-20mA 2 wire transmitter
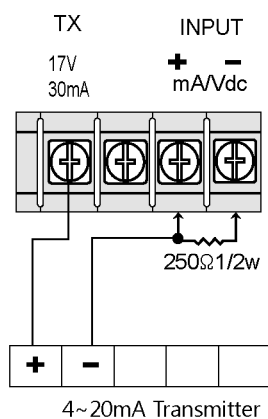
4~20mA Transmitter

2. Twin connection of 4-20mA 2 wire transmitter

4~20mA Transmitter

3. Connection 4-20mA transmitter with external DC power supply

DC Power 4~20mA Transmitter

Notice

1. 250Ω 1 / 2W precision resistor used for 4-20mA input is included in the package.
2. All signal input wires should be separated from the power cable by more than 30cm to prevent noise, and it is recommended to use shielded cable.
3. Power supply for external transmitter Do not use more than TX 17V power capacity.
4. If the power specification of the external transmitter is 17V over, need to use an external power supply.