

We touch your **electricity** everyday!

CSTSM-WD

• TEMPERATURE PROTECTION RELAY



MAIN MODULE

DISPLAY MODULE

Connecting cable required
for Display & Main module

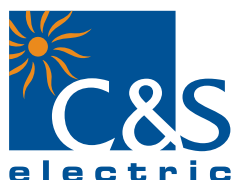
35MM
DIN RAIL
MOUNTABLE
MAIN
MODULE

OVER
TEMP.
TRIP
FAULT
RECORD

POTENTIAL
FREE
DIGITAL
OUTPUT

USER
CONFIGURABLE
DIGITAL
INPUT

MODBUS
COMMUNICATION
FOR
SCADA



PMD Division

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Disclaimer

The information in this document is subject to change without any type of notice and should not be construed as a commitment by C&S. C&S assumes no responsibility for any errors that may appear in this document.

1) Introduction

The CSTSM-WD Intelligent temperature protection relay is an advanced numeric relay that provides multi point temperature monitoring & protection in compact Din-rail enclosure. The relay offers temperature monitoring up-to 6 channels. When the temperature exceeds the predefined threshold, the system triggers an alarm, activates the appropriate temperature control Digital output, and notifies the display and SCADA system for further action.

2) Features

- Wide ambient Temperature monitoring & controlling range with six external temperature sensor.
- This relay is capable of supervising both Alarm and trip condition.
- CSTSM-WD Main module communicate with display module through communication link
- Over Temperature Trip Fault Record is available with Date & Time stamp
- Power consumption : 6 VA
- Two Potential free Digital outputs
- Two User configurable Digital inputs
- Supply voltage : 18 - 60V DC
- 12x2 Alpha numeric bright display
- LED indication for Temperature Trip and Temperature Alarm.
 - 1 LED for TRIP on fault.
 - 1 LINK LED for communication link between Base & display indication.
 - 1 ALARM LED for over temperature indication.
- RJ-11 port on the back side of Display module for communication with the Main module

3) Application

Temperature protection relays are devices used to safeguard electrical equipment from overheating, ensuring the longevity and safe operation of motors, transformers, generators, and other industrial machines. These relays monitor the temperature of equipment and disconnect the power supply if the temperature exceeds a preset limit, thus preventing damage due to excessive heat.

It can be used in following areas.

- Bus Bar Protection
- Temperature protection relays are essential for transformer protection, especially in power plants, substations, and industrial sites where transformers play a critical role.
- Generators, particularly those used in industrial or off-grid applications, are often equipped with temperature protection relays to avoid overheating.
- Temperature protection relays are used in HVAC systems to safeguard motors, compressors, and fans from overheating, ensuring the system runs smoothly and efficiently.

4) Hardware

- Micro controller based numeric design
- 2 Potential free Digital Outputs
- 2 User configurable Digital Inputs
- (12x2) Alpha-numeric LCD
- 03 Fixed LEDs for Pickup & fault annunciation, Link, Trip & Alarm LED for indication
- 03 Push button on display module on the front for HMI
- 06 External Temperature sensors for temperature monitoring & controlling
- MODBUS communication for SCADA

5) Protection Features

- Thermal protection up-to 06 channels

6) Supervision Functions

- Relay is capable for both Alarm & Trip condition

7) Fault Record

CSTSM-WD Model stores over temperature fault record in its non-volatile memory.

Relay records last 5 faults in its non-volatile memory with time stamp :

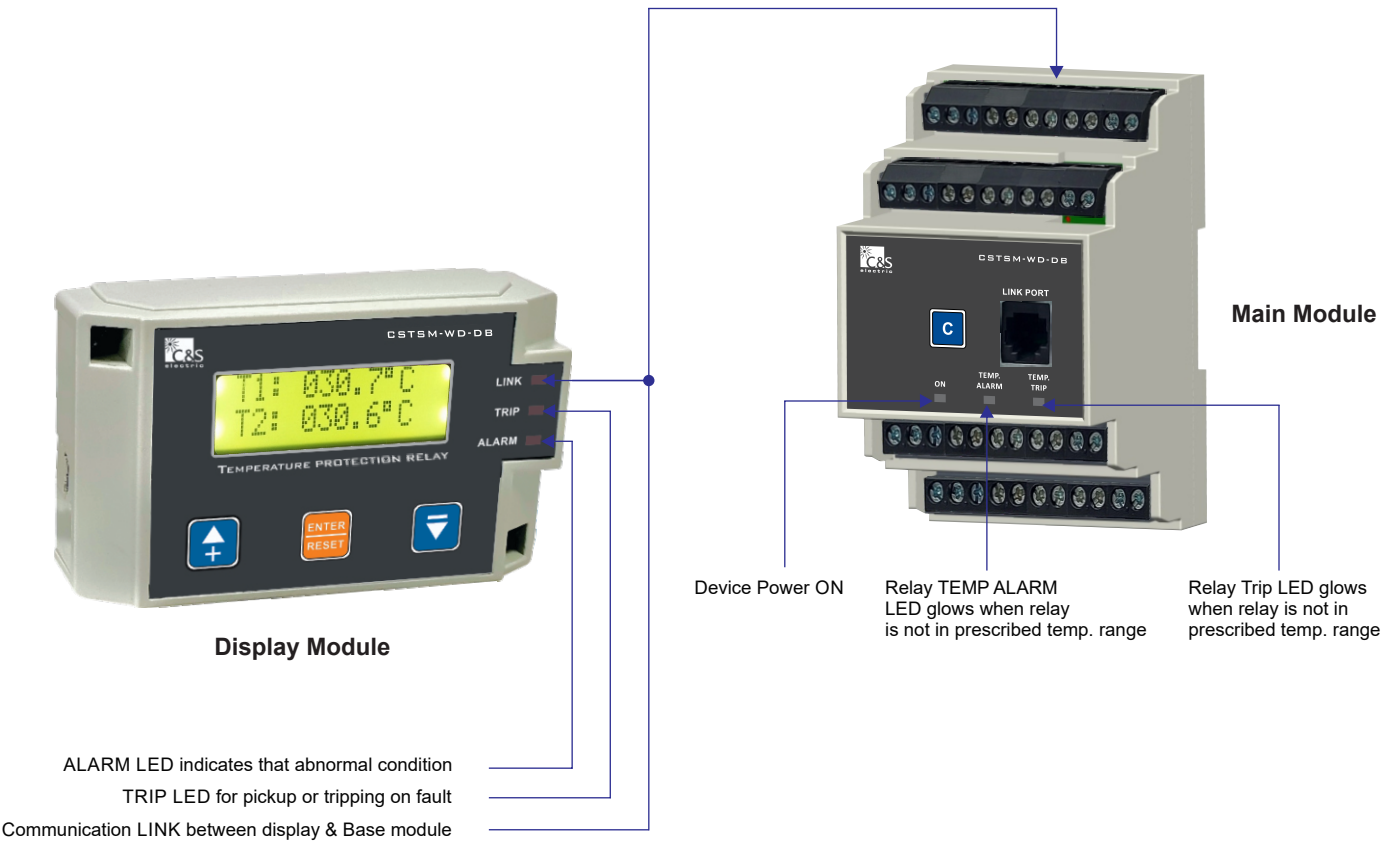
Fault Records helps the user to identify and analyze the cause of fault. User can view the complete fault information by entering the Fault Record No. 1 to 5. When the available memory space is exhausted, the new fault automatically overwrites the oldest Fault.

When the relay trips, the description of fault will appear on the LCD screen automatically.

8) Human Machine Interface

It comprises of 12x2 Alpha Numeric LCD display :-

- 3 Push buttons for setting & other operations for local access. one push button for fault acknowledgment / Reset.
- 1 LED for PICKUP / TRIP on fault, which require Manual reset through RESET key.
- 1 LINK LED for communication link between Base & display indication.
- 1 ALARM LED for abnormal condition indication.



Keys	Description
	used as ENTER key in Edit / Setting / View menu
	Long press / Used as Fault Reset (while on Fault screen)
	Single press / Short press to enter into menu (while on Temp. screen)
	used as scroll key / increment key
	used as scroll key / decrement key



NOTE : Cable length between Main to Display Module is 1.5 meter

9) Parameter Settings of C&S Relay for Temperature Protection

Temperature Protections (Temperature Protections Parameters)		
Trip Temp	Temperature set point above, which the trip output will be activated	30~180 °C
Trip Reset	Temperature below which the Trip condition will be removed	30~180 °C
Alarm Temp	Temperature set point above which the Alarm output will be activated	30~180 °C
Alarm Reset	Temperature below which the Alarm condition will be removed	30~180 °C
Trip Delay	Delay setting for consistency check in trip condition	100ms~10sec
Alarm Delay	Delay setting for consistency check in Alarm condition	100ms~10sec
Reset Delay	Delay setting for consistency check in Trip reset condition	100ms~10sec

10) RTC Setting Parameter

Date and Time can be set by editing HOUR, MIN, SEC, DATE, MONTH & YEAR parameters.

11) Cable Selection



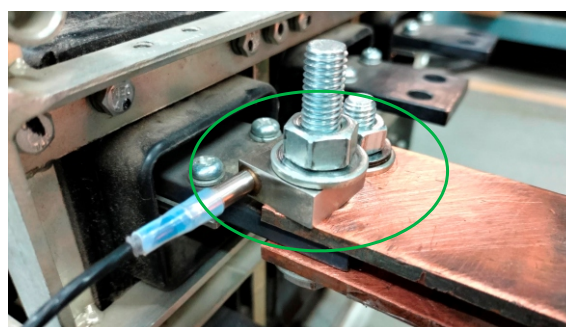
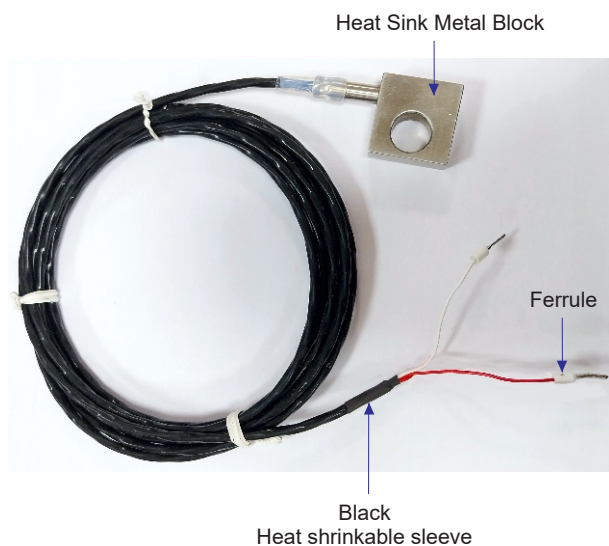
Wire Gauge	: 28 AWG Data communication cable (RJ-11 at both end of the cable)
Temperature	: 120 °C Universal Temperature Standard (UTS)
Communication cable TTPL	: HRFR : Heat Resistance Flame Retardant
Cable Length Req'd.	: 1.5 Meter (For communication between Main & Display module)

12) Technical Data of CSTSM

Functions	CSTSM-WD
Supply Voltage	18 - 60 V DC, $\pm 10\%$
Temperature Sample Rate	02 samples per second
Device Characteristics	
Sensors (06 Nos)	PT100
Temperature Unit	$^{\circ}\text{C}$
Display Resolution	0.1 $^{\circ}\text{C}$
Accuracy	$\pm 3^{\circ}\text{C}$ Max
Output Control Mode	Relay ON/OFF
Display	
LCD Display	Metering and Fault information
LED	Main Module : ON, TEMP. ALARM, TEMP. TRIP Display Module : LINK, TRIP & ALARM.
Power Consumption	Approx. 6W
Digital Output Contact (DO)	2 DOs
Digital Input Contact (DI)	2 DIs
Temperature Operation	0 $^{\circ}\text{C}$ to 70 $^{\circ}\text{C}$
Temperature Storage	-10 $^{\circ}\text{C}$ to 85 $^{\circ}\text{C}$
Wiring Connection	Screwed Terminal
Communication	MODBUS communication for SCADA
Temperature Measurement	
Sensor	0 $^{\circ}\text{C}$ to 180 $^{\circ}\text{C}$
LED Indication	ON - Relay ON condition (Red Color)
Contact Ratings	Terminal 9, 11 : Pole, Terminal 10, 8 : NO, 5A @ 250V AC / 30V DC
Relay Operating Temperature	-10 $^{\circ}\text{C}$ to +55 $^{\circ}\text{C}$
Sensor Operating Temperature	0 $^{\circ}\text{C}$ to +180 $^{\circ}\text{C}$
Storage Temperature	-20 $^{\circ}\text{C}$ to +65 $^{\circ}\text{C}$
Dimension (W x H x D) (in mm)	
Display Module	95 x 59 x 30.5
Main Module	67.5 x 128 x 78
Weight (unpacked & without connecting cable)	380gm (approx) (Display+Main module)/310gm Main module
Mounting	35 mm Din-rail / Panel mount
Certification	RoHS Compliant
Degree of Protection	IP-20 for Terminals, IP-40 for Enclosure
EMI / EMC	
Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surge	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1
Environmental	
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

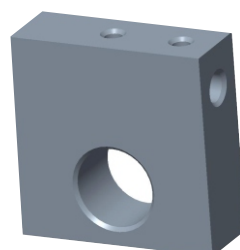
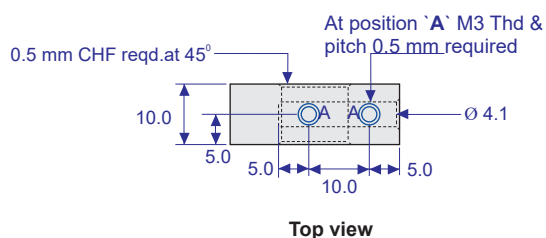
13) Temperature Sensor

Comes with CSTSM-WD (Temperature Sensor Relay)

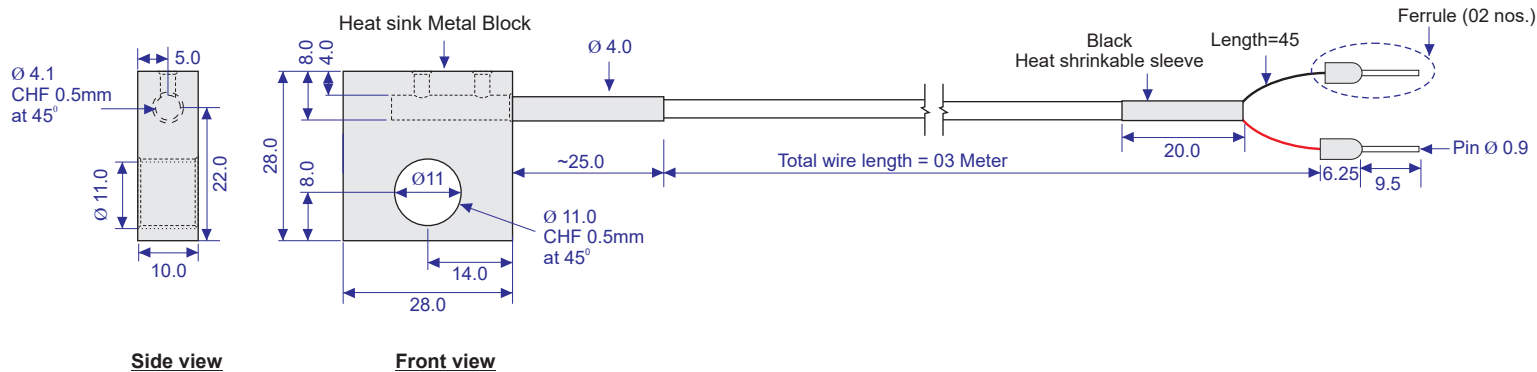


Correct way to install Temperature Sensor on Bus bar

Picture of the temperature sensor, shown here for an idea only that may or may not be differ with the actual product.

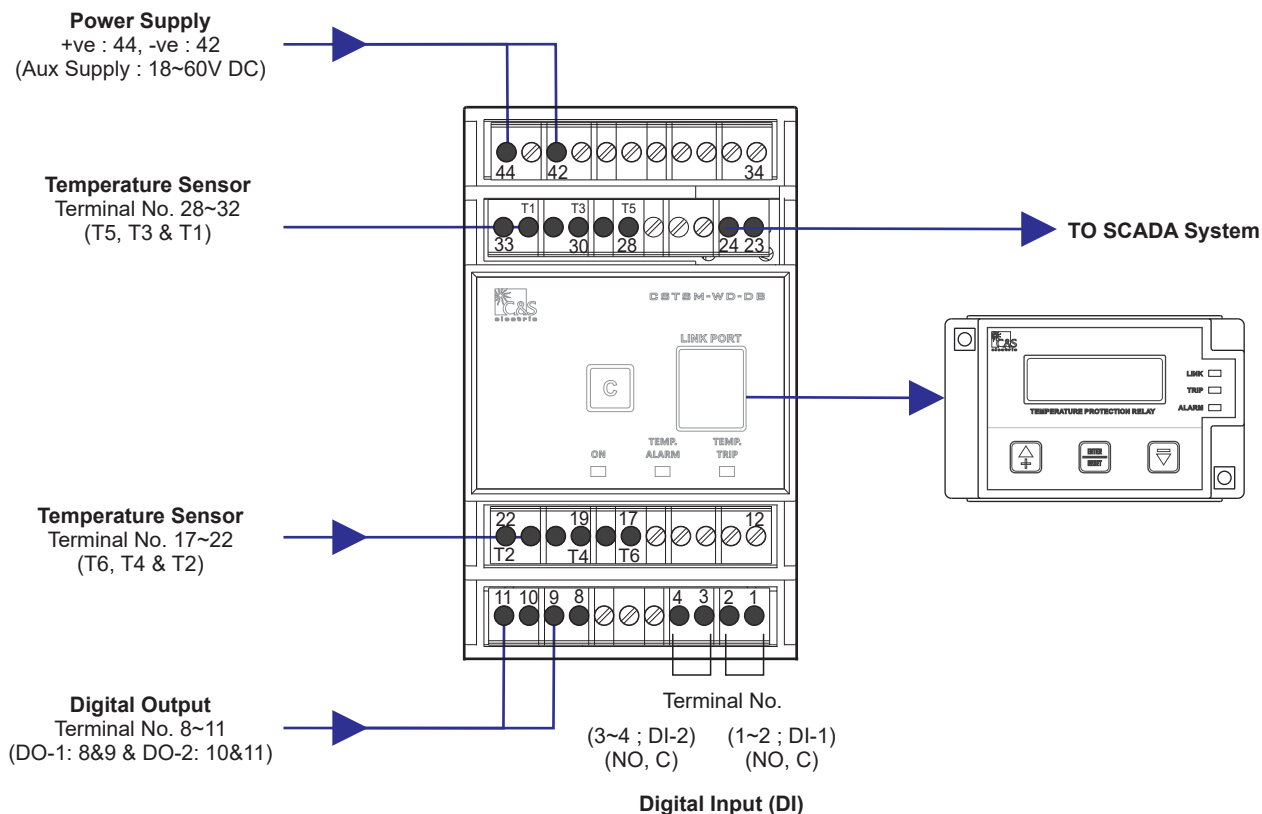


Isometric view
Heat Sink Metal Block



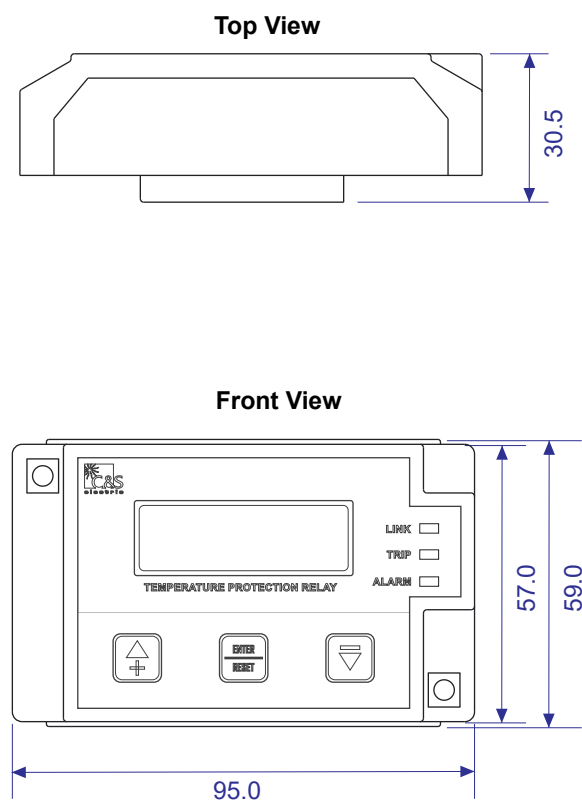
14) Terminal Details

Temperature Sensor Module

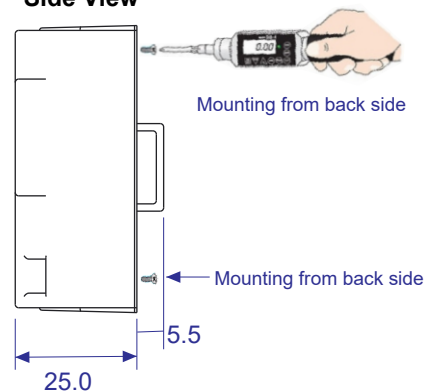


15) Dimension Details of Display Module

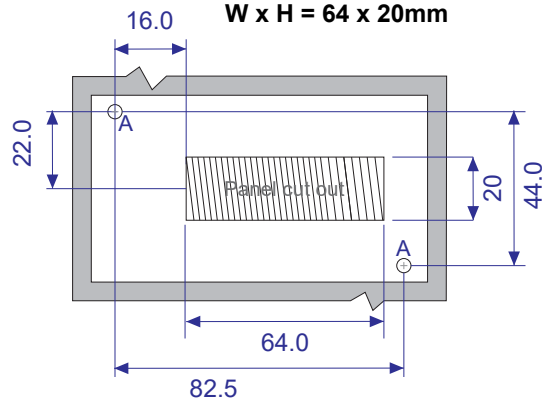
All the Dimension are in mm (Gen Tol.: ±1mm)



Side View



Panel cut out dimension
W x H = 64 x 20mm

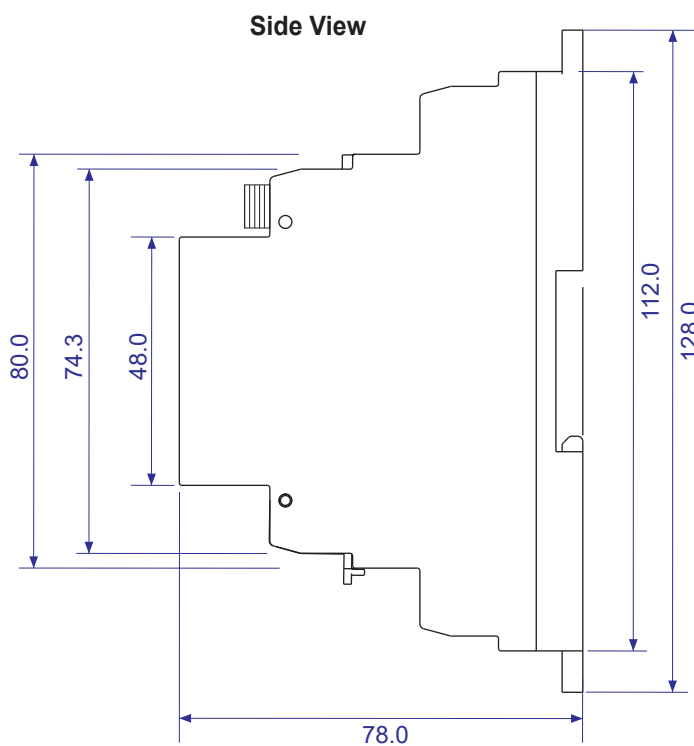
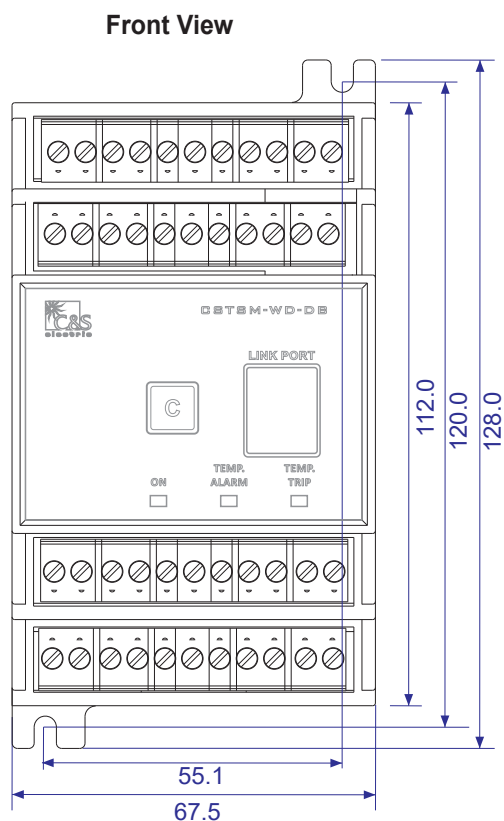


A (mounting hole) → Hole dia 3.0 mm ± 0.2.
Mounting holes of Display Module required M2.5 screw.

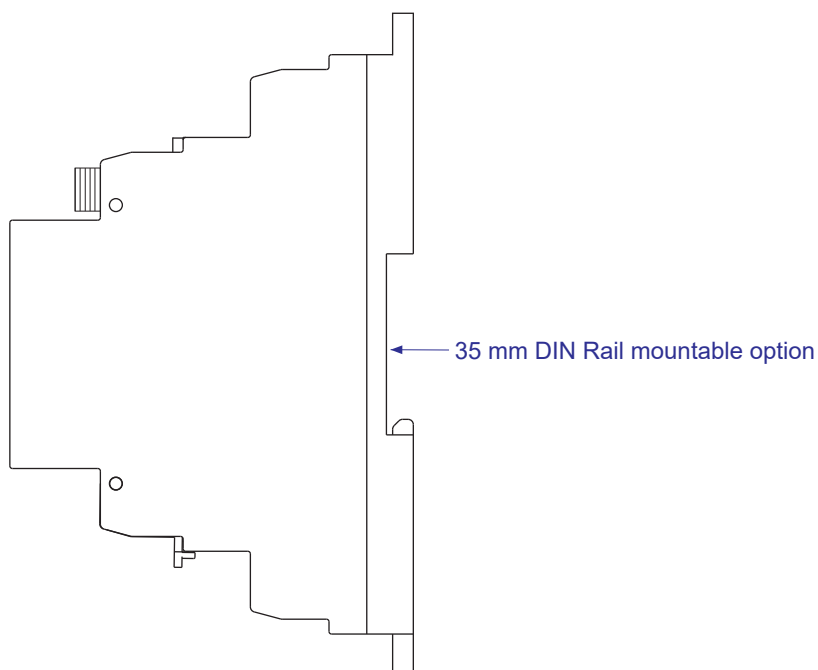
16) Dimensional Details of Main Module

Mounting : 35 mm DIN Rail

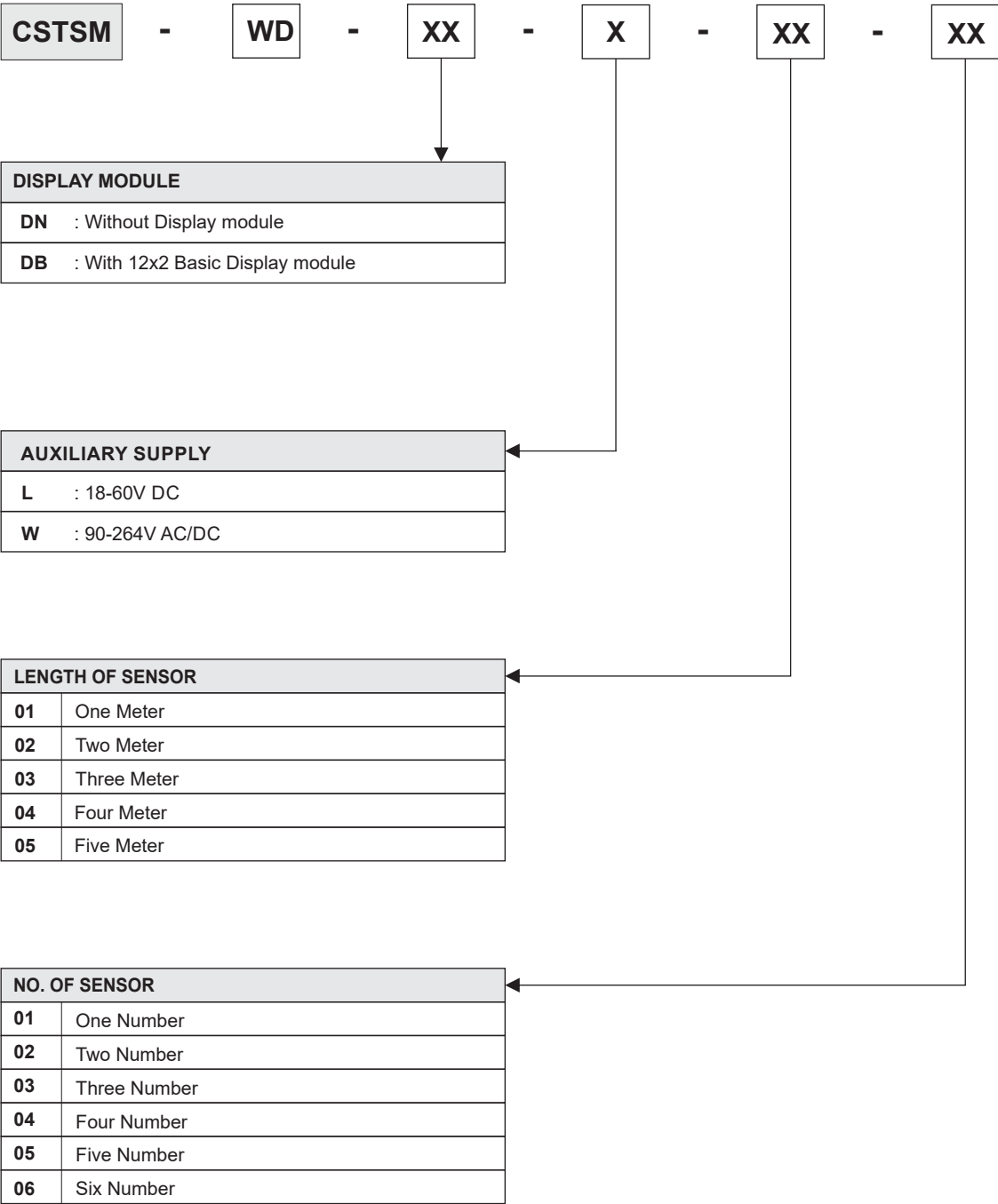
Over all Dim (W x H x D) : 67.5 x 128 x 78 mm



Side View



17) Ordering Information



Example : CSTSM-WD-DB-W-03-06

* Protection model; Refer Table-A

18) Revision History

[illegible]

NOTE

NOTE
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C&S reserves the right to change the design, content or specification contained in this catalog without prior notice.

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