ELECTRONSYSTEM MD s.r.l.

Via Madonna delle Rose, 72

24061 Albano S.Alessandro (BG) - ITALY

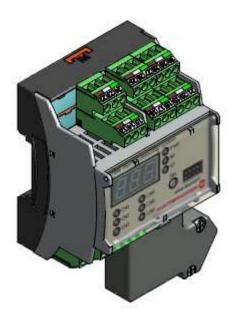Tel. +39035584000 – Fax +39035584099

E-mail: info@elecmd.it

www.elecmd.it

TDS THERMAL DETECTING SYSTEM

PRODUCT NAME: TDS/P/D DWG 43911993

USER'S MANUAL

REV.0 21.10.14

SUMMARY

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1. POWERING ON

At the first powering on the device makes a self diagnostic test of about 3s.

During this test all the leds on front panel are excited to check correct functioning, moreover the reference values of internal voltage are checked.

All the connected temperature sensors are also checked to detect if they are with correct value or in short circuit or not present

Only if the above verifications are ok the relay "error" is excited (positive safety).

On the contrary if one of previous verifications fail the relay "error" is not excited, hence the led "err" switches on and a diagnostic message is sent on bus.

2. STANDARD FUNCTIONALITY

The device shows on led display cyclically on every 3s the temperature of each connected temperature sensor following this proceeding:

- Indication "CHx" means the following value of temperature is related to CHx;
- "125" means the temperature of CHx is equivalent to 125°C (or Farheneit). The sensor is OK and status 0x01 is transmitted to bus;
- "- - -" means the temperature read by sensor is beyond acceptance value, hence the sensor is broken or the cable is damaged. The status 0x04 of sensor is transmitted to bus;
- "_ _ _" means the temperature read by sensor is below acceptance value, hence the sensor is in short cicuit or the sensor is not connected (empty input). The status 0x02 of sensor is transmitted to bus;

3. CHANNEL INDICATION ON FRONT PANEL

The front panel is able to display cyclically the temperature of each sensor but gives also specific indication about the alarms of each channel.

Each channel indication can be activated by a colored led following this rule:

- Green led: means the value of temperature is within acceptance limit.
- Yellow led: means the value of temperature is beyond threshold of alarm limit. The status alarm of sensor is transmitted to bus
- Red led: means the value of temperature is beyond the threshold of lock limit. The status lock of sensor is transmitted to bus

4. POWER AND BUS INDICATION ON FRONT PANEL

On front panel there are also power and bus led for quick and easy verification of all the status of machine

Power led follows this rule:

- Blinking green: means power is ok and all the diagnostic of internal failure is ok
- Red steady led: means the device is in error. The status error of device is transmitted to bus

Bus led: BF(bus fault) , SF (system fault) follow this rule:

BF	SF	Fault condition
OFF	OFF	Everything OK
ON blinking	OFF	No communication
OFF	ON	Parameter not OK
ON	OFF	Configuration not OK

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5. TEMPERATURE ALARMS SELECTION

The device has preset temperature alarms selectable on front panel by a dipswitch. It has 4 pins which allow to activate the relevant alarms following this rule:

DIP POS. 1	DIP POS.2	ALARM SETTING	DIP POS.3	DIP POS.4	LOCK SETTING
OFF	OFF	**90°C**	OFF	OFF	**110°C**
ON	OFF	**115°C**	ON	OFF	**120°C**
ON	ON	**120°C**	ON	ON	**140°C**

Note: pos.1 means the left one and pos. 1 the right one

6. INPUTS

Device can accept up to 6 temperature sensors input. The sensors are powered by device itself. The Brown connection is +5Vdc, White connection is 0Vdc and Green connection is output signal from sensor.

If none sensor is connected to device during start up process the device display ERR and each profibus output is set to 0x00

7. OUTPUTS

Device has 3 changeover contacts to remote the status of overtemperature alarms and status of error:

- Relay for alarm due to overtemperature
- Relay for lock due to ovetemperature
- Relay of ERR due to failure of device

8. SELECTION BUTTON OF FRONT PANEL

On front panel is located a push button caller SEL.

It is able to perform following features:

- RESET: short pressing of SEL is used to reset alarms, if any
- ADDRESS: long pressing >5s of SEL is used to enter into address modification menu: after indication of "ADD" is displayed a short pressing of SEL will increase the address nr. Wait 20s and appearing of indication SET to record the selection and get back to standard operation
- °C / °F: long pressing >5s of SEL until indication of "ADD" is displayed, then long pressing >5s of SEL until °C appears, short pressing of SEL swap to °F. Wait 20s and appearing of indication SET to record the selection and get back to standard operation

9. PROFIBUS DATA OUTPUT

INPUT		DESCRIPTION
Byte0	SENSOR 1 HIGH bits	Sensor 1 temperature
Byte1	SENSOR 1 LOW bits	Temp1 = [(Byte0 << 8) + (Byte1)]/10 [°C]
Byte2	SENSOR 2 HIGH bits	Sensor 2 temperature
Byte3	SENSOR 2 LOW bits	Temp2 = [(Byte2 << 8) + (Byte3)]/10 [°C]
Byte4	SENSOR 3 HIGH bits	Sensor 3 temperature
Byte5	SENSOR 3 LOW bits	Temp3 = [(Byte4 << 8) + (Byte5)]/10 [°C]
Byte6	SENSOR 4 HIGH bits	Sensor 4 temperature
Byte7	SENSOR 4 LOW bits	Temp4 = [(Byte6 << 8) + (Byte7)]/10 [°C]
Byte8	SENSOR 5 HIGH bits	Sensor 5 temperature
Byte9	SENSOR 5 LOW bits	Temp5 = [(Byte8 << 8) + (Byte9)]/10 [°C]
Byte10	SENSOR 6 HIGH bits	Sensor 6 temperature
Byte11	SENSOR 6 LOW bits	Temp6 = [(Byte10 << 8) + (Byte11)]/10 [°C]
Byte12	SENSOR 1 STATUS	0x00: Sensor not found during start-up

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		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte13	SENSOR 2 STATUS	0x00: Sensor not found during start-up
		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte14	SENSOR 3 STATUS	0x00: Sensor not found during start-up
		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte15	SENSOR 4 STATUS	0x00: Sensor not found during start-up
		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte16	SENSOR 5 STATUS	0x00: Sensor not found during start-up
		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte17	SENSOR 6 STATUS	0x00: Sensor not found during start-up
		0x01: Sensor OK
		0x02: Short to GND / Sensor unplugged
		0x04: Short to 5Vdc
Byte18	ALARM CH	Bit0: Sensor 1 (0 Alarm OFF – 1 Alarm ON)
		Bit1: Sensor 2 (0 Alarm OFF – 1 Alarm ON)
		Bit2: Sensor 3 (0 Alarm OFF – 1 Alarm ON)

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		Bit3: Sensor 4 (0 Alarm OFF – 1 Alarm ON)
		Bit4: Sensor 5 (0 Alarm OFF – 1 Alarm ON)
		Bit5: Sensor 6 (0 Alarm OFF – 1 Alarm ON)
		Bit6-7: NOT USED
Byte19	LOCK CH	Bit0: Sensor 1 (0 Lock OFF – 1 Lock ON)
		Bit1: Sensor 2 (0 Lock OFF – 1 Lock ON)
		Bit2: Sensor 3 (0 Lock OFF – 1 Lock ON)
		Bit3: Sensor 4 (0 Lock OFF – 1 Lock ON)
		Bit4: Sensor 5 (0 Lock OFF – 1 Lock ON)
		Bit5: Sensor 6 (0 Lock OFF – 1 Lock ON)
		Bit6-7: NOT USED
Byte20	ALARM STAT	System ALARM state
Byte21	LOCK STAT	System LOCK state

OUTPUT		DESCRIPTION
Byte0	RESET SYSTEM	Possible values: - 0x00: NOT reset - 0x01: reset

10. PROFIBUS TYPE

Id number: 0F17

GSD File: EMD_0F17.gsd

Interface: PROFIBUS DP

Version: DPV0

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11. STORAGE

If the complex must be storage before use, please keep dry and repaired from cold and hot climates, respecting the original position of case.

STORAGE TEMPERATURE: -15°C ÷ +70°C

RELATIVE HUMIDITY: 95% @ +40°C