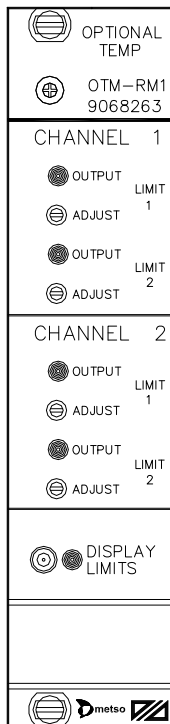




OTM – RM1

VAL0122982 / SKC9068263



OPTIONAL TEMPERATURE MONITOR FOR THE RMS-SYSTEM

USERS MANUAL



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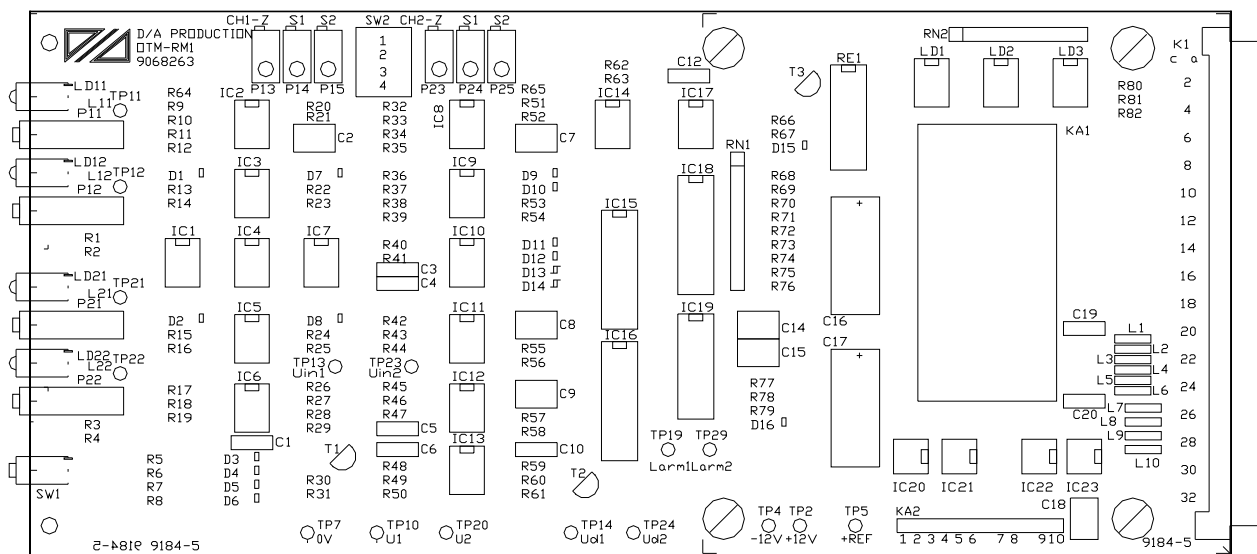
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1 LOCATION OF COMPONENTS



2 DESCRIPTION OF OPERATION

The OTM-RM1 unit monitors two PT-100 type temperature sensors.

The monitor includes following functions:

- Zero and span calibration for each PT-100 input.
- Internal zero and span level-adjustments to 1V (0%) and 5V (100%).
- 100 or 200 °C full span levels, determined by dip settings.
- A galvanic isolated 4-20 mA output current signal for each channel.
- A 1-5 V voltage output for the RMS display unit (DCU-RM1/2 or LDU-RM1).
- Two limit circuits, which compares the signal to a limit values for each channel.
The limits are adjustable from 0 to 100% of signal amplitude.
The limit output is active when the signal is lower than the adjusted limit value, and is indicated by the front panel led's.
A not active output initiates a hysteresis on the falling slope of the signal.
The output is optic-isolated from the unit, and drives a P-channel power transistor.
The transistor is connected to the positive rail of the system power supply.
- A sensor check circuit which detects open loop and short-circuit input. Any fault deactivates the limit-outputs and generates 125 % signal amplitude on the current output.
- A RMS-system interface which permits readouts of the measured level and the adjusted limit-values to the LDU-RM1 unit (=Limit Display Unit), or to the DCU-RM1 unit.
- A dc/dc power unit, which converts and isolates the 24 Vdc system power supply to the internal +12V and -12V dc-voltages.

3 TECHNICAL SPECIFICATION

Article no:	OTM-RM1 / VAL0122982 / SKC9068263		
Power supply:	+24 Vdc, $\pm 10\%$, max 0.14 A		
Internal supply:	± 12 Vdc, isolated from the power supply		
Board dimension:	L=220 mm, W=100 mm, T=30 mm (6TE)		
Panel adjustments:	15-turn potentiometers CHANNEL 1: LIMIT ADJUST 1, LIMIT ADJUST 2 CHANNEL 2: LIMIT ADJUST 1, LIMIT ADJUST 2		
Panel output indicators:	Green led's CHANNEL 1: LIMIT OUTPUT 1, LIMIT OUTPUT 2 CHANNEL 2: LIMIT OUTPUT 1, LIMIT OUTPUT 2		
Panel switch:	DISPLAY LIMITS, push-button switch		
Signal input:	3 wire PT-100 sensor		
Range:	100 or 200 °C (selected by dip-setting)		
Input low trip level:	100 °C: 92 Ω (-16 °C) 200 °C: 92 Ω (-16 °C)		
Input high trip level:	100 °C: 144 Ω (+113 °C) 200 °C: 185 Ω (+225 °C)		
Signal input impedance:	> 100 k Ω		
Internal zero level:	+1.0 V $\pm 0.5\%$		
Internal full-span level:	+5.0 V $\pm 0.5\%$		
Limit hysteresis:	2 %, only on the rising slope of the signal		
External digital outputs:	Optic isolated P-channel FET transistor connected to positive rail of the RMS system voltage. Max. current, 0.1 A		
	DO+OTMx1	Digital outputLIMIT 1, Channel 1	to PLC
	DO+OTMx2	Digital outputLIMIT 2, Channel 1	to PLC
	DO+OTMx3	Digital outputLIMIT 1, Channel 2	to PLC
	DO+OTMx4	Digital outputLIMIT 2, Channel 2	to PLC
	(x can be from 1 to 6 depending on card slot and type of rack.)		
	The limits are activated when the OTM value is lower than the adjusted limit.		
	It is no hysteresis when changing from the active to the inactive state.		
	It is 2 % hysteresis when changing from the inactive to the active state.		
	The led in the front of the unit indicates an activated output.		
Analogue output:	Two galvanic isolated currents, 4-20 mA, $\pm 1\%$. Load: 0 - 800 Ω , Isolation voltage: 500V.		
RMS-unit interface:	Yes.		

4 SETTINGS

SW2/1-4 in the OFF position 100 °C full span level.

SW2/1-4 in the ON position 200 °C full span level.

The setting applies to both channels and all poles must be set in the same position.

5 ADJUSTMENTS

The adjustment of the alarm limits is done on this unit, but the reading of the limits must be done on the indicator unit (LDU-RM1 or DCU-RM1/2) of the RMS-system.

For adjustments, see the CALIBRATION MANUAL for the RMS-system, RMS-EX1, RMS-SD1, RMS-CD1 or RMS-DD1.

6 FACTORY ADJUSTMENTS

This adjustment is done by the supplier, and usually not necessary after delivery.

If necessary, however, this must be done by qualified personnel only. The potentiometers are located on the upper part of the board, and are reached from the top of the unit.

6.1 Channel 1, Internal zero level

- Connect 100.0 Ω resistor to the input for channel 1.
Connect the resistor between T+OTMx1 and TS-OTMx1, connect T-OTMx1 to TS-OTMx1
- Connect a DVM to the board (- to TP7 and + to TP10).
- Adjust the potentiometer P13 (CH1-Z), until the DVM reads $+1 \pm 0.005$ Vdc.

6.2 Channel 1, Internal 100 °C full span level

- Set SW2/1-4 in the “off” position.
- Change the resistor to 138.6 Ω .
- Adjust the potentiometer P14 (CH1-S1), until the DVM reads $+5 \pm 0.005$ Vdc.

6.3 Channel 1, Internal 200 °C full span level

- Set SW2/1-4 in the “on” position.
- Change the resistor to 175.8 Ω .
- Adjust the potentiometer P15 (CH1-S2), until the DVM reads $+5 \pm 0.005$ Vdc.

6.4 Channel 2, Internal zero level

- Connect 100.0 Ω resistor to the input for channel 2.
Connect the resistor between T+OTMx2 and TS-OTMx2, connect T-OTMx2 to TS-OTMx2
- Connect a DVM to the board (- to TP7 and + to TP20).
- Adjust the potentiometer P23 (CH2-Z), until the DVM reads $+1 \pm 0.005$ Vdc.

6.5 Channel 2, Internal 100 °C full span level

- Set SW2/1-4 in the “off” position.
- Change the resistor to 138.6 Ω .
- Adjust the potentiometer P24 (CH2-S1), until the DVM reads $+5 \pm 0.005$ Vdc.

6.6 Channel 2, Internal 200 °C full span level

- Set SW2/1-4 in the “on” position.
- Change the resistor to 175.8 Ω .
- Adjust the potentiometer P25 (CH2-S2), until the DVM reads $+5 \pm 0.005$ Vdc.

7 CONTACT

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