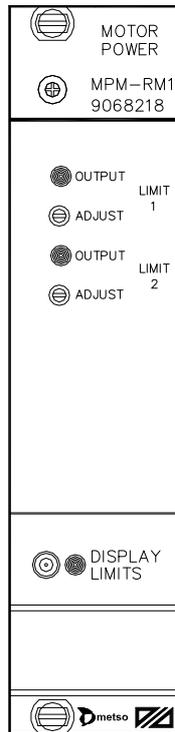




# MPM – RM1

VAL0122978 / SKC9068218



## MOTOR POWER MONITOR FOR THE RMS-SYSTEM USERS MANUAL



CONTENTS

1. LOCATION OF COMPONENTS ..... 2

2. DESCRIPTION OF OPERATION ..... 3

3. TECHNICAL SPECIFICATION ..... 3

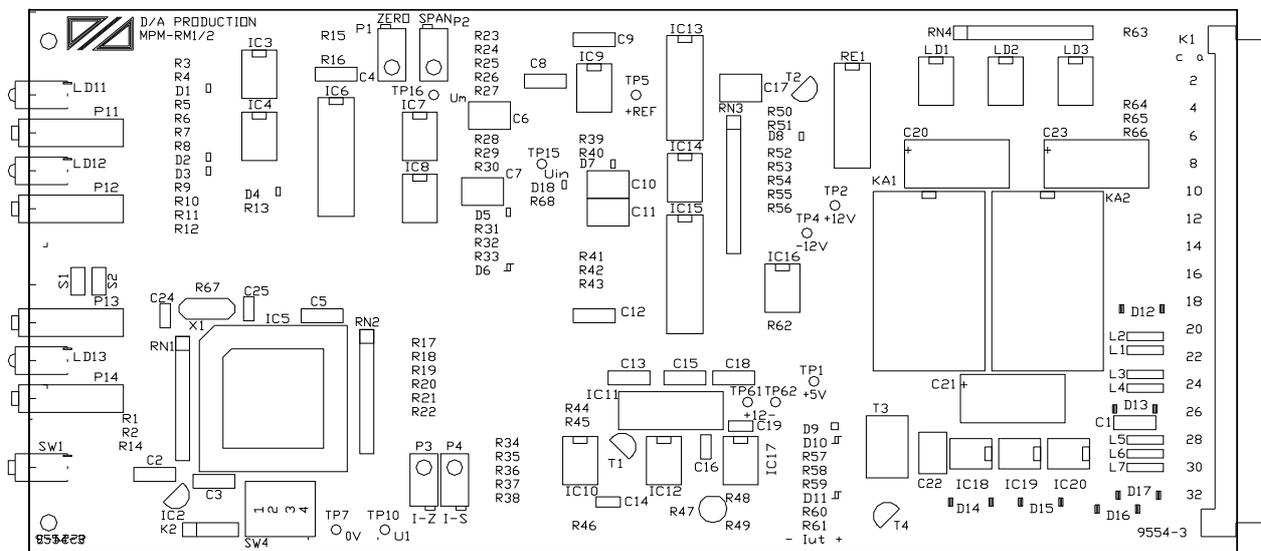
4. SETTINGS ..... 4

5. ADJUSTMENTS ..... 4

6. FACTORY ADJUSTMENTS ..... 4

7. CONTACT ..... 4

1. LOCATION OF COMPONENTS



## 2. DESCRIPTION OF OPERATION

The MPM-RM1 unit monitors the refiner main motor power. The unit receive an input current signal from the high voltage switchgear of the main motor and includes the following functions:

- Zero and span calibration for input signal current.
- Internal zero and span level-adjustments to 1V (0%) and 5V (100%).
- Isolated 4-20 mA output current.
- A 1-5 V voltage output for RMS enhanced display unit.
- 2 limit circuits, which compares the signal to two limit values. The limits are adjustable from 0 to 100% of signal amplitude. The limit-outputs are active when the signal is higher than the adjusted limit values. The active outputs is indicated at the front panel led's. A not active output initiates a hysteresis on the rising slope of the signal. The output is opto-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 current input check circuit that compares the current to preadjusted limits. Any faults deactivate the limit-outputs and generate a -25 % signal amplitude on both the signal and the current output.
- A RMS-system interface that permits readouts of the measured level and the adjusted limit-values to the LDU-RM1 unit or the DCU-RM1/2 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:	MPM-RM1 / VAL0122978 / SKC9068218		
Power supply:	+24 Vdc, $\pm 10\%$ , max 0.14 A		
Internal supply:	$\pm 12$ Vdc, isolated from the power supply		
Board dimension:	L=220 mm, W=100 mm, T=30 mm (6 TE)		
Panel adjustments:	LIMIT - 1, LIMIT - 2: 15-turn potentiometers		
Panel output indicators:	LIMIT OUTPUT-1, -2: green led's		
Panel switch:	DISPLAY LIMITS: push-button switch		
Input range:	4-20 mA		
Low current trip level:	3.0 mA		
Signal input impedance:	100 $\Omega$		
Internal zero level:	+1.0 V $\pm 0.5\%$		
Internal full-span level:	+5.0 V $\pm 0.5\%$		
Limit hysteresis:	2%, only when output is not active		
External digital outputs:	Opto isolated P-channel transistor connected to positive rail of the RMS system voltage. Max. current, 0.1 A		
	DO+MPM1	Digital output	LIMIT 1, "low" to PLC
	DO+MPM2	Digital output	LIMIT 2, "low-low" to PLC
	The outputs are activated when the MPM value is higher 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.		
Analog output1:	Galvanically isolated current, 4-20 mA, $\pm 0.5\%$ load: 0 - 800 $\Omega$ , Isolation voltage: max 500V		
RMS-unit interface:	Yes		

#### 4. SETTINGS

The nominal level the motor power must be configured.

This is done in the indicator unit (LDU-RM1 or DCU-RM1/2) of the RMS-system.

See the PROGRAMMERS MANUAL for the RMS-system, RMS-EX1, RMS-SD1, RMS-CD1 or RMS-DD1.

#### 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 is located on the upper part of the board, and is reached from the top.

Internal zero-level

- Connect 4.00 mA input current.
- Connect a DVM (+ to TP10, - to TP7) to the board.
- Adjust the potentiometer P1 (ZERO), until the DVM reads  $+1.0 \pm 0.005$  Vdc.

Internal full-span-level

- Connect 20.00 mA input current.
- Connect a DVM (+ to TP10, - to TP7) to the board.
- Adjust the potentiometer P2 (SPAN), until the DVM reads  $+5.0 \pm 0.005$  Vdc.

#### 7. CONTACT

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