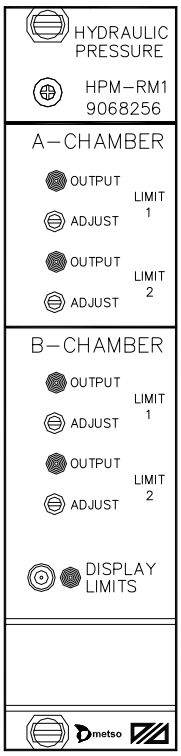
dametric

HPM – RM1

VAL0122850 / SKC9068256



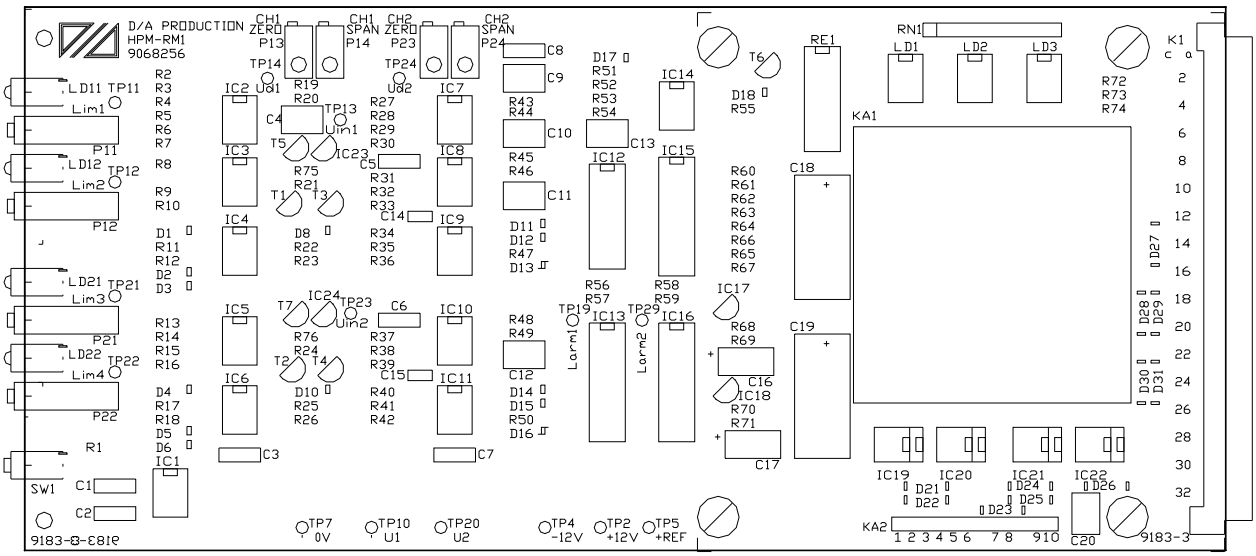
HYDRAULIC PRESSURE MONITOR FOR THE RMS-SYSTEM

USERS MANUAL

Valmet

CONTENTS

1. LOCATION OF COMPONENTS



2. DESCRIPTION OF OPERATION

The HPM-RM1 unit feeds and monitors two pressure transmitters. The monitor includes following functions:

- 19 V excitation voltage through 296 Ω resistance for each transmitter.
- Internal zero and span level-adjustments to 1V (0%) and 5V (100%).
- A galvanically isolated 4-20 mA outputs current signal for each output.
- A 1-5 V voltage output for the RMS display and control unit (LDU-RM1 or DCU-RM1/2).
- Two limit circuits, which compares the signal to two 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 higher than the adjusted limit values, 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 -25 % 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:	HPM-RM1 / VAL0122850 / SKC9068256
Power supply:	+24 Vdc, ± 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
	A-chamber: LIMIT - 1, LIMIT - 2
	B-chamber: LIMIT - 1, LIMIT - 2
Panel output indicators:	Green led's
	A-chamber: LIMIT OUTPUT - 1, LIMIT OUTPUT - 2
	B-chamber LIMIT OUTPUT - 1, LIMIT OUTPUT - 2
Panel switch:	DISPLAY LIMITS, push-button switch
Signal input:	2 wire pressure transmitter
Input range:	4 - 20 mA
Low current trip level:	3.0 mA
High current trip level:	21.0 mA
Signal input impedance:	100 Ω
Internal zero level:	+1.0 V ± 0.5 %
Internal full-span level:	+5.0 V ± 0.5 %
Limit hysteresis:	2 %, only on the rising slope of the signal
External digital outputs:	Opto isolated P-channel fet transistor connected to positive rail of the rms system voltage. Max. current, 0.1 A
DO+HPA1	Digital output LIMIT 1, A-chamber to PLC
DO+HPA2	Digital output LIMIT 2, A-chamber to PLC
DO+HPB1	Digital output LIMIT 1, B-chamber to PLC
DO+HPB2	Digital output LIMIT 2, B-chamber to PLC
	The limits are activated when the HPM 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 output:	Two galvanically isolated currents, 4-20 mA, ± 1 %
	Load: 0 - 800 Ω, Isolation voltage: 500V
RMS-unit interface:	Yes

4. SETTINGS

The nominal level of each channel must be configured.
This is done in the indicator unit (LDU-RM1 or DCU-RM1) of the RMS-system.
The nominal output level is fully dependent of the nominal output of the pressure transmitter. To convert the pressure to a force, the area of the hydraulic cylinder must be known.
For settings, 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 PROGRAMMERS 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 of the unit.

6.1 A-chamber, Internal zero level

- Connect a resistor in series with a DVM (current mode) to the A-chamber input. Adjust the resistor (approx. 4.5 kΩ) until the DVM reads 4.00 mA.
- Connect a DVM to the board (- to TP7 and + to TP10).
- Adjust the potentiometer P13 (CH1-Z), until the DVM reads +1 ± 0.005 Vdc.

6.2 A-chamber, Internal full span level

- Adjust the resistor (to approx. 670 Ω) until the DVM reads 20.00 mA.
- Adjust the potentiometer P14 (CH1-S), until the DVM reads +5 ± 0.005 Vdc.

6.3 B-chamber, Internal zero level

- Connect a resistor in series with a DVM (current mode) to the B-chamber input. Adjust the resistor (approx. 4.5 kΩ) until the DVM reads 4.00 mA.
- Connect a DVM to the board (- to TP7 and + to TP20).
- Adjust the potentiometer P23 (CH2-Z), until the DVM reads +1 ± 0.005 Vdc.

6.4 B-chamber, Internal full span level

- Adjust the resistor (to approx. 670 Ω) until the DVM reads 20.00 mA.
- Adjust the potentiometer P24 (CH2-S), until the DVM reads +5 ± 0.005 Vdc.

7. CONTACT

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