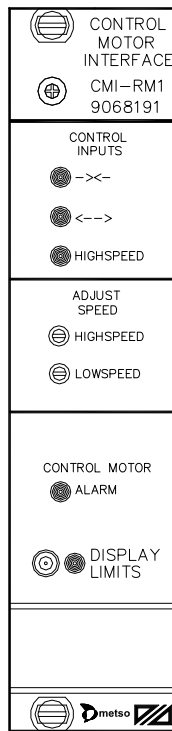




CMI – RM1

VAL0122828 / SKC9068191



CONTROL MOTOR INTERFACE FOR THE RMS-SYSTEM USERS MANUAL

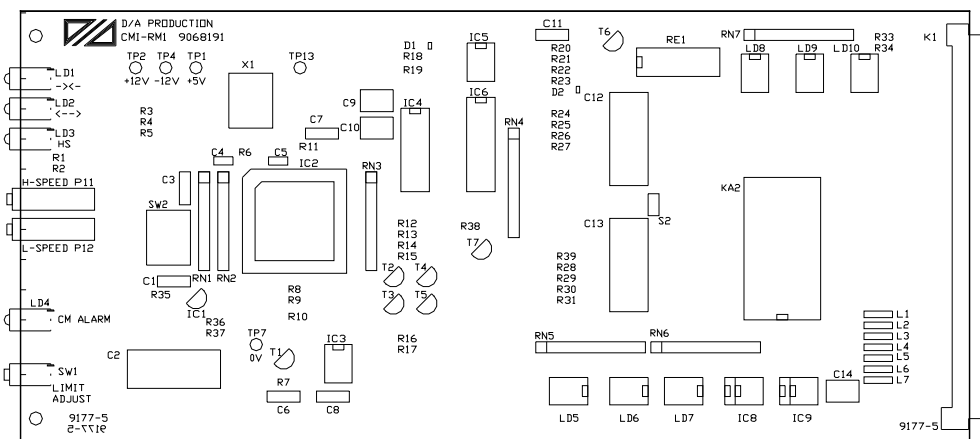


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This document is revised for software revision 4.2.

1 LOCATION OF COMPONENTS



2 DESCRIPTION OF OPERATION

The CMI-RM1 Control Motor Interface is used in combination with the control motor driver, CMD-RM1 or CMD-RM2, and together they will form an interface to control a 5-phase or a 2-phase stepping motor.

The unit is controlled from the refiner PLC-unit or from the DCU or the LDU-unit in the RMS-system and generates pulses in three different modes:

SINGLE STEP MODE: A single control input pulse, less than 500 ms, will generate a corresponding number of pulses that will move the refiner disc 0.01 mm.

LOW-SPEED MODE: When the control-input pulse is longer than 500 ms, it will generate a frequency of pulses that will move the refiner disc with a speed of 0.05 mm/second.

HIGH-SPEED MODE: When the control-input pulse is longer than 500 ms, and the high speed input is active, it will generate a frequency of pulses that will move the refiner disc with a speed of 0.25 mm/second. Due to variation of the thread pitch of the control rod, 4 different sets of pre-adjusted frequencies can be selected according to SETTINGS in chapter 4.

Both the low-speed and the high-speed frequencies can also be adjusted by multi-turn potentiometers in the front of the CMI-RM1-unit.

In all modes, the unit will generate a direction output signal and also a clock pulse output signal for each 0.01 mm of axial movement.

HOLDING TORQUE: An activation of this input will apply holding torque on the stepping motor.

Note the following about software revisions.

The software has been revised during 2004 to be able to handle two types of stepping motor cards and thereby two types of stepping motors.

If the card has a software revision that is 3.5 or lower (see the label on the microprocessor), it can only handle the CMD-RM1 and the corresponding 5-phase stepping motor. This will affect some of the settings under item 4.

If it has a revision of 4.0 or higher, it is able to also handle the CMD-RM2 and the corresponding 2-phase stepping motor.

3 TECHNICAL SPECIFICATION

Article no:	CMI-RM1 / VAL0122828 / SKC9068191
Power supply:	+24 Vdc, $\pm 10\%$, max 0.14 A
Internal supply:	+12 Vdc, -12 Vdc, isolated from the power supply
Board dimension:	L=220 mm, W=100 mm, T=30 mm (6TE)
Panel adjustments:	HIGH SPEED, LOW SPEED, 15-turn potentiometers
Panel adjustment limits:	48 to 153 % of nominal setting
Panel output indicators:	-><- , <-->, HIGH SPEED : Yellow led's indicating when the inputs is activated. ALARM, Red led indicating when the alarm output is deactivated.
Panel switch:	DISPLAY LIMITS, push-button switch.
RMS-unit interface:	Yes
Alarm input:	From the relay output on the CMD-RM1 / CMD-RM2 unit.
External digital inputs:	Opto isolated digital input from the PLC-system. Input resistance: 2 k Ω . Voltage level: 24 Vdc.
DI+CMTO	Plates together
DI+CMAP	Plates apart
DI+CMHS	High speed
DI+CMHT	Holding torque
External digital outputs:	Opto isolated P-channel to the RMS-system. Fet-transistor connected to positive rail of the RMS system voltage. Max current, 0.1 A.
DO+CMAL	Control motor alarm. It is normally activated, but is deactivated when the alarm input is deactivated and approx. 5 s during power-up of the unit
DO+CM	Not used
Internal digital outputs:	Voltage output. Voltage level 5 V. To the DCU-unit.
ID+CMIDR	Control motor direction
ID+CMICL	Control motor clock pulses (1 pulse / 0.01 mm)
Internal digital outputs:	Voltage output. Voltage level 5 V. To the CMD-unit.
CM-DIR	Control motor direction
CM-PUL	Control motor pulses
Internal digital inputs:	Opto-isolated digital input from the DCU-unit. Input resistance: 1 k Ω . Voltage level: 5 Vdc.
ID+CMTO	Plates together
ID+CMAP	Plates apart
ID+CMHS	High speed.

4 SETTINGS

4.1 Adjustment screw, pitch of thread mm /360 degrees

Gap change in mm:	1.0	1.41	2.0	0.5
SW2/1	on	off	on	off
SW2/2	on	on	off	off
Type of Refiner:	RGP-200 M- XX CF-82	Old RGP-60	RGP-A	Old RLP 50/54
Pitch of thread (mm)	1.0	1.41	2.0	0.50
Degrees / 0.01 mm	3.6	2.5	1.8	7.2

4.2 Select type of driver card, CMD-RM1 or CMD-RM2 (only rev. 4.2 or higher)

SW2/3 on = CMD-RM2 (2-phase stepping motor)
 off = CMD-RM1 (5-phase stepping motor)

4.3 Select motor direction (only for CMD-RM2 and rev. 4.2 or higher)

SW2/4 on = Normal direction
 off = Reverse direction

Default setting. /1 = on /2 = off /3= on /4= on

4.4 Low-speed.

Potentiometer LOW-SPEED in the front of the unit

Potentiometer: (%) 50 - - - - -100 - - - - - 150
 Axial speed of rotor: (mm/s) 0.025 0.05 0.075
 Default setting: 100%.

4.5 High-speed.

Potentiometer HIGH-SPEED in the front of the unit

Potentiometer: (%) 50 - - - - -100 - - - - - 150
 Axial speed of rotor: (mm/s) 0.125 0.25 0.375
 Default setting: 100%.

See also the calibration manual and list of parameters for RMS-EX1, RMS-SD1, RMS-CD1 or RMS-DD1.

5 CONTACT

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