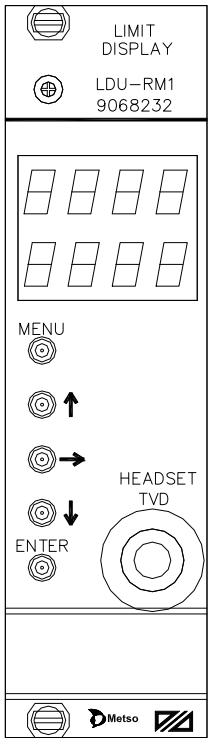
dametric

LDU – RM1

VAL0122977 / SKC9068232



LIMIT AND DISPLAY UNIT

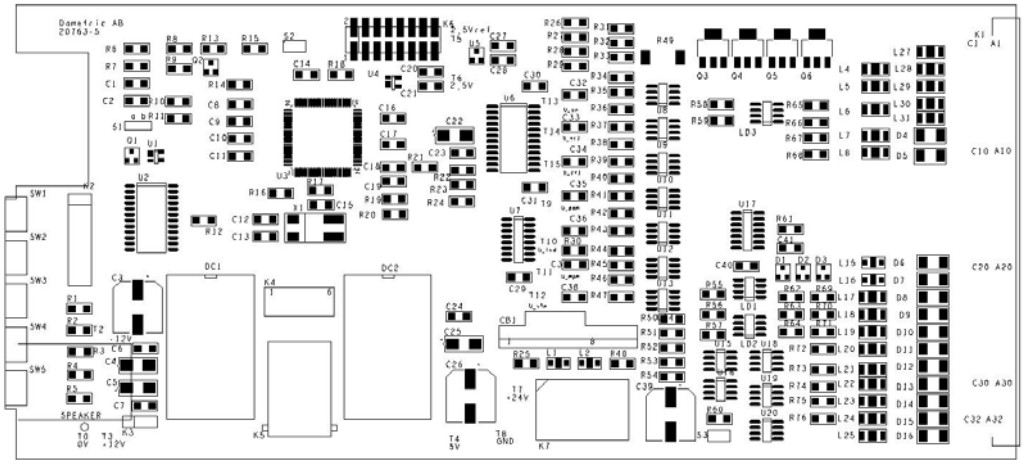
FOR THE RMS-SYSTEM

USERS MANUAL

Valmet

CONTENTS

1 LOCATION OF COMPONENTS



2 DESCRIPTION OF OPERATION

2.1 RMS DISPLAY

The LDU-RM1 is a display unit for the RMS system. The display is activated when the pushbutton "DISPLAY LIMITS" is activated on any board. The LDU unit will then monitor the read-outs of the measured levels and the adjusted limit-values of the selected units.
Indicated values on the display are in the interval of -999 to 1999. The unit identifies which of the other units that is activated, and transforms the 1-5 VDC signal to appropriate reading, (i.e. 3.75 MW for the MPM-unit, or 13.25 mm/s for the VIM-unit). A second row of display indicates which of the channel or limit that is displayed.
The channels and limits is selected by "↑" or "↓"pushbuttons on the LDU unit.
The display is activated for about 4 minutes after any of the "DISPLAY LIMITS" buttons is activated, and will then automatically be turned off. If the push-button "→"is activated, the auto-turnoff is disabled. The rightmost decimal point in the lower row of the display will confirm the disabling of auto-turnoff.

2.2 PLC inputs and outputs

Following signals is dedicated for the PLC-unit.

DI+LDU2	Digital input	LDU 2	from PLC

The DI+LDU2 input is reserved for future use

DO+LDURD	Digital output	LDU unit ready	to PLC

The DO+LDURD will be activated when the unit is ready.

2.3 Analog inputs

The unit will continuously read the following analog input signals (not the limits) from the other units in the rack: POM, EX1 (spare), TVD, MPM, VIM and ER1 (spare in the RMS-ER1-rack).

2.4 CMI digital inputs

The unit will monitor the digital pulses from the CMI-RM1 unit and thus be able to read the movement and direction of the electrical stepping motor.

2.5 Serial digital output

A serial communication interface supplies the values for POM, TVD, MPM and VIM to a remote display (PDU-RM3) or to an operator's panel.

2.6 FeedGuard function

DI+FGRE	Digital input	Feed guard reset	from PLC
DO+FGCO	Digital output	Feed guard contact	to PLC
DO+FGAL	Digital output	Feed guard alarm	to PLC

The FeedGuard alarm output (DO+FGAL) is normally set active. When the feed guard reset input (DI+FGRE) is deactivated, the unit immediately starts the feed guard retraction supervision function. The unit immedeately reads the POM-value, and then counts the pulses from the CMI-unit. When the amount of pulses corresponds to the preset feed-guard-distance, the unit reads the POM-unit again and compares it to the preset distance. If it is within the limits, the feed-guard-contact output (DO+FGCO) is set active. If it is out of the tolerance, the feed-guard-alarm output (DO+FGAL) is instead deactivated.
The lower limit is 100% of the piston length + 50% of the safe distance and the higher is 100% of the piston length + 150% of the safe distance.
The alarm state is reset by any push-button in the front of the unit or automatically when the feed guard reset input (DI+FGRE) is activated again. Feed Guard signals:

2.7 RMC, Rotor Position Control

Units with software revision 3.0 and later include the rotor position control (RMC) software.
RMC is activated when the parameter "ErCE" is set to 1, and this enables access to several other parameters (the parameters is hidden if "ErCE" is set to 0).
The parameters are described in the programming manual for the EX-system, PRO-EX1.
The handling of the RMC-function is described in the calibration manual, CAL-EX1.

DI+LDU1 Digital input Touch Point from PLC

The input is set high to enable Touch Point. The signal is generated from the key-switch "TOUCHPOS".

DO+LDU3 Digital output RMC Ready to PLC

The output is normally high, but is set low if the TVD-measurement or the POM-measurement is in an alar state.

DO+LDU4 Digital output Rotor in Production Start Pos to PLC

The output is low as long as the rotor position is less than the calculated "RMC-position".

2.8 Major revisions

3.0/Feb., 2000	Added software for electronic RMC.
4.0/Oct., 2005	New processor on a daughterboard enables communication with an operators panel.
4.1/Sept., 2007	New board with surface mount components.

3 TECHNICAL SPECIFICATION

Dametric article no:	LDU-RM1
Metso article no.:	VAL0122977
SKC article no.:	SKC9068232
Power supply:	+24 Vdc, ± 10% 0.12 A, max
Internal supply:	±12 Vdc and +5 Vdc, isolated from the power supply
Board dimension:	L=220 mm, W=100 mm, T=35 mm (7 TE)
Panel signal indicator:	Upper row: -999 - 9999, 4 digit led display Lower row: -999 - 9999, 4 digit led display
Panel switches:	5 push-button switches
RMS-Interface:	3 addresses and 1 reset digital outputs (pnp) 1 reset input ± 200 Vdc common-mode voltage range analog input resolution: 12 bit
RMS analog inputs:	Range: 0-8 Vdc Common mode voltage range: ± 200 Vdc Resolution:TVD - 12 bit, MPM - 8 bit, VIM - 8 bit, ER1 - 8 bit
Seriell output:	RS-485, connects to the PDU-RM3 displayt or to an operators panel.
Digital inputs from the PLC:	level: +24 Vdc, impedance: 5 kohm
Digital inputs from the CMI:	level: +5 Vdc, impedance: 1 kohm
External digital outputs:	Opto-isolated P-channel fet transistor connected to positive rail of the RMS system voltage. Max. current, 0.1 A
DO+FGCO	Digital output, Feed guard contact, to PLC
DO+FGAL	Digital output, Feed guard alarm, to PLC
DO+LDURD	Digital output, Unit read, to PLC
DO+LDU3	Digital output, RMC Ready, to PLC
DO+LDU4	Digital output, Rotor in Production Start Position, to PLC
External digital inputs:	Opto-isolated digital input from the PLC-system. Input resistance: 2 kohm. Voltage level: 24 Vdc.
DI+FGRE	Digital input, Feed guard reset, from PLC
DI+LDU1	Digital input, TouchPoint Enable, from PLC
DI+LDU2	Digital input, Uncommitted input for future use, from PLC.

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