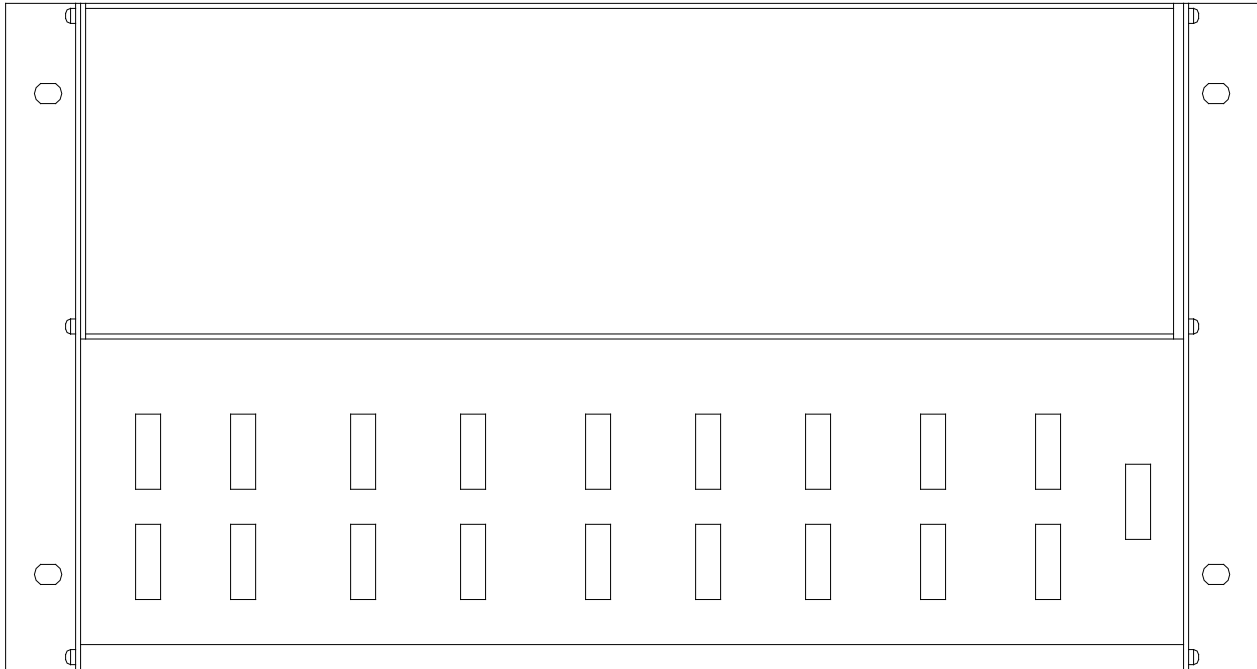




RMS-EX1 Rack

VAL0123042 / SKC9068177



REFINER MONITOR SYSTEM – EX EXPANDABLE RACK RACK MANUAL



CONTENTS

1. GENERAL
2. TECHNICAL SPECIFICATION
3. UNITS IN THE RACK
4. OUTLINE DRAWING
5. CONNECTION DRAWING

1. GENERAL

The RMS-EX1 is an empty rack unit designed to hold the RMS cards for a RMS-RX1 Refiner Monitor System.

The rack is ordered together with a chosen set card for each installation. The rack can also be purchased as a spare part.

2. TECHNICAL SPECIFICATION

System voltage:	+24 VDC, $\pm 10\%$, max 2.0 A
Operating temperature:	0 - 55 C
Storage temperature:	-40 to +70 °C
Air humidity:	F according to DIN 40 040 (15% to 95% not condensing)
Protection:	IP00 (no protection against dust or water)
Mounting:	Mounting with 4 pcs M6 screws on a vertical mounting plate in a protecting cabinet
Connecting cables:	Detachable screw connectors, max 2.5mm ² cable area Cable shields is connected direct to the ground bar
Grounding:	The rack is grounded through the ground cable
CE-approval:	According to EN 50081-2:1993, EN 50082-2:1995, 89/336/EEC Test report: Enator TR976011

3 UNITS IN THE RACK

<i>Function</i>	<i>D/A- article no.</i>	<i>VAL / SKC- article no.</i>
Rack	RMS-EX1	VAL0123042 / SKC 9068177
Control Motor Driver	CMD-RM2	VAL0173903 / SKC 9101601
Control Motor Interface	CMI-RM1	VAL0122828 / SKC 9068191
Vibration Monitor	VIM-RM1	VAL0123136 / SKC 9068201
Motor Power Monitor	MPM-RM1	VAL0122978 / SKC 9068218
Touch Point Vib. Detector	TVD-RM3	VAL0123117 / SKC 9251496
Limit Display Unit	LDU-RM1	VAL0122977 / SKC 9068232
Position Monitor	POM-RM1	VAL0123032 / SKC 9068249
Hydraulic Pressure Mon.	HPM-RM1	VAL0122850 / SKC 9068256
Optional Temp Monitor	OTM-RM1	VAL0122982 / SKC 9068263
Cover Fronts	TP-36	

4. CONNECTION DIAGRAM K11, K12, K21, K22

4.1 CONTROL MOTOR POWER Power Supply

K11

CM+U	1	●	+24-35 Vdc
CM+U	2	●	+24-35 Vdc
CM-GND	3	●	0 V (control motor chassis)
CM-GND	4	●	0 V (control motor chassis)

4.2 CONTROL MOTOR DRIVER Electric stepping Motor

K12

CM+W1A	1	●	Positive, phase 1	Cable:	1
CM-W1E	2	●	Negative, phase 1		2
CM+W2A	3	●	Positive, phase 2		3
CM-W2E	4	●	Negative, phase 2		4
CM+W3A	5	●			
CM-W3E	6	●	This connection is for a 2-phase stepping motor and a CMD-RM2.		
CM+W4A	7	●			
CM-W4E	8	●			
CM+W5A	9	●			
CM-W5E	10	●			
CM-GND	11	●			
CM-GND	12	●	The cable shield is connected to the ground bar below the rack		

4.3 RMS POWER Power Supply

K21

Us+	1	●	+24 Vdc
Us+	2	●	+24 Vdc
Us-	3	●	0 V
Us-	4	●	0 V

4.4 CONTROL MOTOR INTERFACE Digital inputs and outputs

K22

DI+CMTO	1	●	Digital input, Plates Together	PLC
DI+CMAP	2	●	Digital input, Plates Apart	PLC
DI+CMHS	3	●	Digital input, High Speed	PLC
DI+CMHT	4	●	Digital input, Holding Torque	PLC
DO+CMAL	5	●	Digital output, Stepping Motor Alarm	PLC
DO+CM	6	●	Digital output, Spare	PLC

4. CONNECTION DIAGRAM K31, K32, K33, K41

4.5 VIM and MPM Analog inputs and outputs

K31

AO+VIM	1 ●	Analog output, 4-20 mA	Instrum. system
AO-VIM	2 ●	Analog output, 4-20 mA	Instrum. system
AI+MPM	3 ●	Analog input, 4-20 mA	Instrum. system
AI-MPM	4 ●	Analog input, 4-20 mA	Instrum. system
AO+MPM	5 ●	Analog output, 4-20 mA	Instrum. system
AO-MPM	6 ●	Analog output, 4-20 mA	Instrum. system

4.6 VIM and MPM Digital outputs

K32

DO+VIM1	1 ●	Digital output, VIM, Limit 1	PLC
DO+VIM2	2 ●	Digital output, VIM, Limit 2	PLC
DO+MPM1	3 ●	Digital output, MPM, Limit 1	PLC
DO+MPM2	4 ●	Digital output, MPM, Limit 2	PLC

4.7 VIM

Transducer signals

K33

T+VIM	1 ●	Transducer, positive	* : white+brown
T-VIM	2 ●	Transducer, negative	* : green+yellow
TS-VIM	3 ●		
	4 ●	The cable shield is connected to the ground bar below the rack	

* K-VIM25, K-VIM25A or K-VIMS25

4.8 TVD

Headset output, Analog outputs, Digital outputs, Digital inputs

K41

AO+TVDHS	1 ●	Headset output	Headset
AO-TVDHS	2 ●	Headset output	Headset
AO+TVD	3 ●	Analog output, 4-20 mA	Instrum. system
AO-TVD	4 ●	Analog output, 4-20 mA	Instrum. system
DO+TVD1	5 ●	Digital output, Limit 1	PLC
DO+TVD2	6 ●	Digital output, Limit 2	PLC
DI+LOGA	7 ●	Digital input, Low Gain	PLC
DO+MPM3	8 ●	Digital output, Limit 3, MPM	PLC

4. CONNECTION DIAGRAM K42, K43, K44

4.9 TVD

Transducer signals, Sync input, Spare output

K42

T+TVD	1 ●	Transducer, positive	* : white+brown
T-TVD	2 ●	Transducer, negative	* : green+yellow
TS-TVD	3 ●	The cable shield is connected to the ground bar below the rack	
T+TVDS	4 ●	Sync. input, positive	Not used
T-TVDS	5 ●	Sync. input, negative	Not used
AO+TVDA	6 ●	Analog output, spare	Not used
AO-TVDA	7 ●	Analog output, spare	Not used
	8 ●		* K-TVDT25 or K-TVDS25

4.10 LDU

Digital inputs and outputs

K43

DI+LDU1	1 ●	Digital input, (DI-TPMA) RMC Touch Point	PLC
DI+LDU2	2 ●	Digital input, LDU 2	Not used
DO+LDU3	3 ●	Digital output, (DO+RMCRD) RMC Ready	PLC
DO+LDU4	4 ●	Digital output, (DO+RMCPSP) RMC Start Pos	PLC
DO+LDURD	5 ●	Digital output, LDU Ready	PLC
ID+SCI1	6 ●	Digital output, Serial Com. Interface	Not used
ID+SCI2	7 ●	Digital output, Serial Com. Interface	Not used
ID-SCI	8 ●	Digital output, Serial Com. Interface	Not used

4.11 LDU

Digital inputs and outputs

K44

DI+FGRE	1 ●	Digital input, Feed Guard Reset	PLC
DO+FGCO	2 ●	Digital output, Feed Guard Contact	PLC
DO+FGAL	3 ●	Digital output, Feed Guard Alarm	PLC
ID+PDU1	4 ●	Serial output	4 (see below)
ID+PDU2	5 ●	Serial input	5
ID-PDU	6 ●	Serial common	6
U+PDU	7 ●	Power supply, +24V	7
U-PDU	8 ●	Power supply, 0V,	8
		Socket	Cable K-PDU3
		4	white
		5	brown
		6	green+shield
		7	yellow
		8	grey
			Cable to Operators panel
			white
			brown
			green
			not connected
			not connected

4. CONNECTION DIAGRAM K51, K52, K53, K54

4.12 POM

Transducer signals

K51

TI-POT	1 ●	Transducer, input positive	K-POT25: white
TI+POT	2 ●	Transducer, input negative	K-POT25: brown
TE-POT	3 ●	Transducer, input common	K-POT25: green
TE+POT	4 ●	Transducer (not used)	K-POT25: yellow
TR+POT	5 ●	Transducer, excitation positive	K-POT25: grey
TM+POT	6 ●	Transducer, excitation negative	K-POT25: rose
TS-POT	7 ●	(switch white and brown for reversed indication)	
	8 ●	The cable shield is connected to the ground bar below the rack	

4.13 POM

Analog outputs, Digital outputs

K52

AO+POM	1 ●	Analog output, POM, 4-20 mA	Instrum. system
AO-POM	2 ●	Analog output, POM, 4-20 mA	Instrum. system
DO+POM1	3 ●	Digital output, POM Limit 1	PLC
DO+POM2	4 ●	Digital output, POM Limit 2	PLC
DO+POM3	5 ●	Digital output, POM Limit 3	PLC
	6 ●		

4.14 HPM

Transducer signals

K53

T+HPMA	1 ●	Transducer, A-Chamber, positive
T-HPMA	2 ●	Transducer, A-Chamber, negative
TS-HPMA	3 ●	The cable shield is connected to the ground bar below the rack
T+HPMB	4 ●	Transducer, B-Chamber, positive
T-HPMB	5 ●	Transducer, B-Chamber, negative
TS-HPMB	6 ●	The cable shield is connected to the ground bar below the rack

4.15 HPM

Analog outputs, Digital outputs

K54

AO+HPA	1 ●	Analog output, HPM-A, 4-20 mA	Instrum. system
AO-HPA	2 ●	Analog output, HPM-A, 4-20 mA	Instrum. system
AO+HPB	3 ●	Analog output, HPM-B, 4-20 mA	Instrum. system
AO-HPB	4 ●	Analog output, HPM-B, 4-20 mA	Instrum. system
DO+HPA1	5 ●	Digital output, HPM-A Limit 1	PLC
DO+HPA2	6 ●	Digital output, HPM-A Limit 2	PLC
DO+HPB1	7 ●	Digital output, HPM-B Limit 1	PLC
DO+HPB2	8 ●	Digital output, HPM-B Limit 2	PLC

4. CONNECTION DIAGRAM K61, K62, K63, K64**4.16 OTM 1****Transducer signals****K61**

T+OTM11	1 ●	Transducer 1-1, positive
T-OTM11	2 ●	Transducer 1-1, compensation
TS-OTM11	3 ●	Transducer 1-1, negative
T+OTM12	4 ●	Transducer 1-2, positive
T-OTM12	5 ●	Transducer 1-2, compensation
TS-OTM12	6 ●	Transducer 1-2, negative

The cable shield is connected to the ground bar below the rack

4.17 OTM 1**Analog outputs, Digital outputs****K62**

AO+OTM11	1 ●	Analog output 1-1, 4-20 mA	Instrum. system
AO-OTM11	2 ●	Analog output 1-1, 4-20 mA	Instrum. system
AO+OTM12	3 ●	Analog output 1-2, 4-20 mA	Instrum. system
AO-OTM12	4 ●	Analog output 1-2, 4-20 mA	Instrum. system
DO+OTM11	5 ●	Digital output, 1-1, Limit 1	PLC
DO+OTM12	6 ●	Digital output, 1-1, Limit 2	PLC
DO+OTM13	7 ●	Digital output, 1-2, Limit 1	PLC
DO+OTM14	8 ●	Digital output, 1-2, Limit 2	PLC

4.18 OTM 2**Transducer signals****K63**

T+OTM21	1 ●	Transducer 2-1, positive
T-OTM21	2 ●	Transducer 2-1, compensation
TS-OTM21	3 ●	Transducer 2-1, negative
T+OTM22	4 ●	Transducer 2-2, positive
T-OTM22	5 ●	Transducer 2-2, compensation
TS-OTM22	6 ●	Transducer 2-2, negative

The cable shield is connected to the ground bar below the rack

4.19 OTM 2**Analog outputs, Digital outputs****K64**

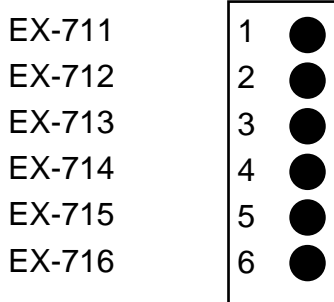
AO+OTM21	1 ●	Analog output 2-1, 4-20 mA	Instrum. system
AO-OTM21	2 ●	Analog output 2-1, 4-20 mA	Instrum. system
AO+OTM22	3 ●	Analog output 2-2, 4-20 mA	Instrum. system
AO-OTM22	4 ●	Analog output 2-2, 4-20 mA	Instrum. system
DO+OTM21	5 ●	Digital output, 2-1, Limit 1	PLC
DO+OTM22	6 ●	Digital output, 2-1, Limit 2	PLC
DO+OTM23	7 ●	Digital output, 2-2, Limit 1	PLC
DO+OTM24	8 ●	Digital output, 2-2, Limit 2	PLC

4. CONNECTION DIAGRAM K71, K72, K73, K74

4.20 EX 1

Not used

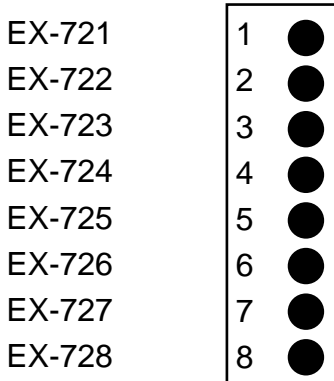
K71



4.21 EX 1

Not used

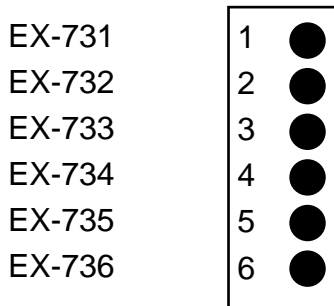
K72



4.22 EX 2

Not used

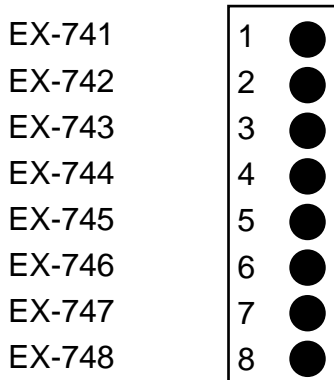
K73



4.23 EX 2

Not used

K74

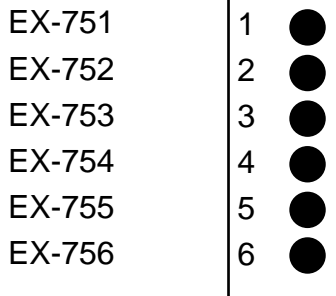


4. CONNECTION DIAGRAM K75, K76

4.24 EX 3

Not used

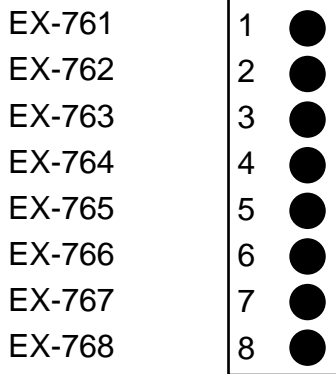
K75



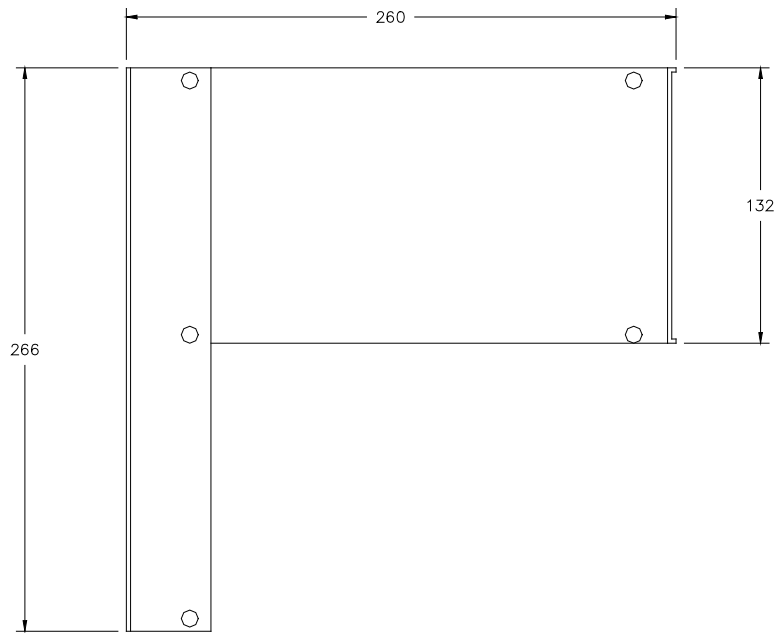
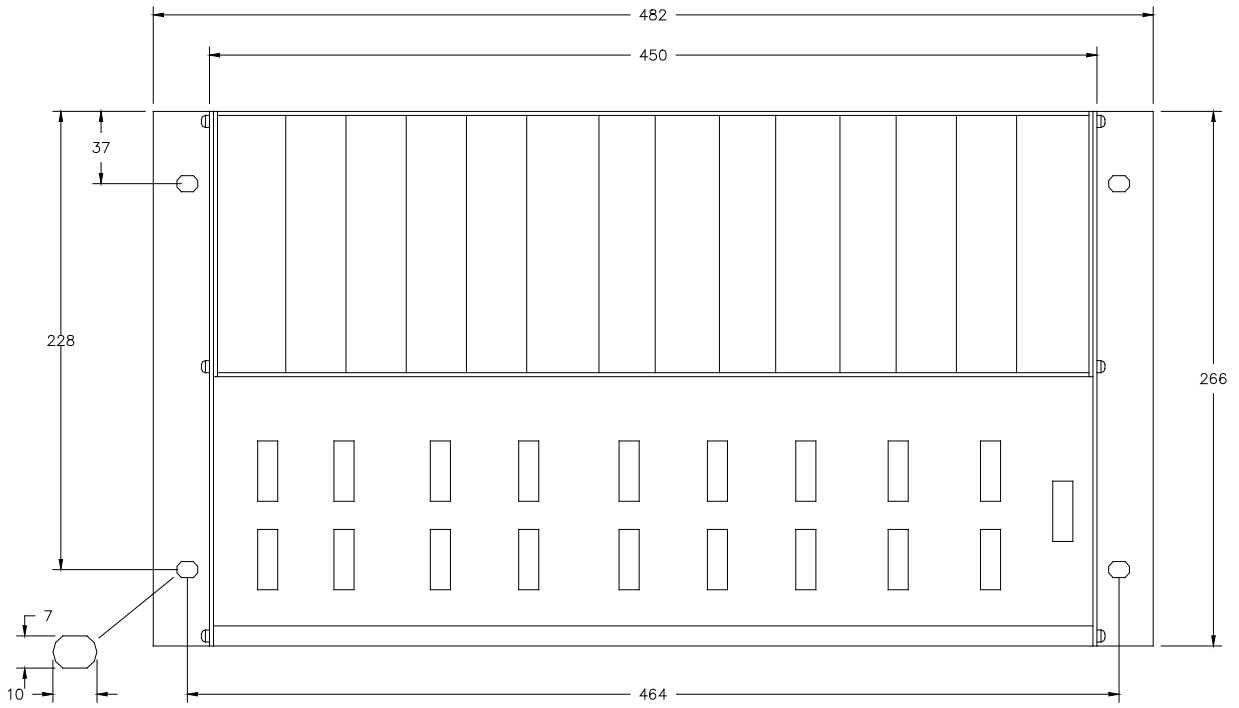
4.25 EX 3

Not used

K76



5. OUTLINE DRAWING



6. CONNECTION DRAWING

