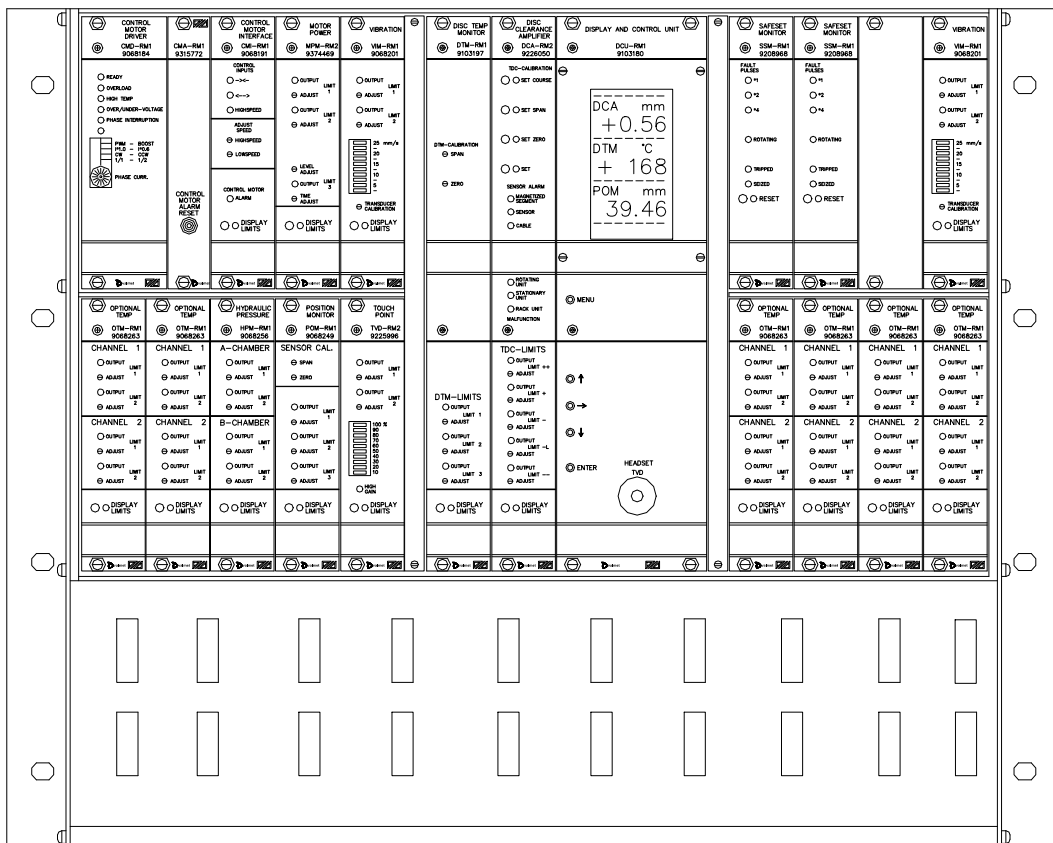




# RMS-DD1

## VAL0123039 / SKC9225989



## REFINER MONITOR SYSTEM – DD MANUAL



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2. UNITS
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### 1. TECHNICAL SPECIFICATION

System voltage:	+24 Vdc, +/-10%, max 4.5 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 of M6 screws to vertical mounting plate in a protecting cabinet
Digital outputs:	Voltage, 24Vdc
Type:	Active high (PNP) output from +24 V system voltage
Isolation:	500V, galvanic isolated from the respective unit
Load:	Max 50mA
Digital inputs:	Voltage, 24Vdc
Type:	Active high with resistor to 0V system voltage
Isolation:	500 V, galvanic isolated from the respective unit
Impedance:	5 kΩ
Trip voltage:	12 ± 5 V
Analog outputs:	Current, 4-20 mA
Isolation:	500V, galvanic isolated
Load:	Max 800 Ω
Analog inputs:	Current, 4-20 mA
Isolation:	± 200 V relative respective units
Impedance:	Max 200 Ω
Connecting cables:	Detachable screw connectors, max 2.5mm <sup>2</sup> 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

## 2.1 UNITS

<b>Funktion</b>	<b>Dametric no.</b>	<b>VAL-no.</b>	<b>SKC-no.</b>
Rack	RMS-DD1	0123039	9225989
Display and Control Unit	DCU-RM1	0100517	9103180
Disc Clearance Amplifier	DCA-RM2	0122834	9226050
Disc Temp Monitor	DTM-RM1	0122841	9103197
Control Motor Driver	CMD-RM1	0122825	9068184
or	CMD-RM2	0173903	9101601
Control Motor Interface	CMI-RM1	0122828	9068191
Vibration Monitor	VIM-RM1	0123136	9068201
Motor Power Monitor	MPM-RM2	0122979	9374469
Touch Point Vib. Detector	TVD-RM2	0123116	9225996
Position Monitor	POM-RM1	0123032	9068249
Hydraulic Pressure Mon.	HPM-RM1	0122850	9068256
Optional Temp Monitor	OTM-RM1	0122982	9068263
Safeset Monitor	SSM-RM1	0123053	9208968
Covering plate	TP-36		

## 2.2 DESCRIPTION OF THE UNITS

### **RMS-DD1**

### **Rack RMS-DD**

Power supply : 24 Vdc, max 4A (depending on included units), from an external power unit  
 Internal connectors: 32-pole and 64-pole pcb-connectors type DIN-C, for the internal units  
 External connectors: 4, 6, 8 and 12-pole screw connectors for external signals

### **DCU-RM1**

### **Display and Control Unit**

Function: Display for internal units, Disc clearance Controller  
 Input: See separate manual  
 Output: See separate manual

### **DCA-RM2**

### **Disc Clearance Amplifier**

Function: Measures the True Disc Clearance. 2 units in the rack, conical and flat-zone.  
 Digital inputs: DCA-calibration  
 Input: TDC-sensor  
 Digital outputs: Limit + +, Limit +, Limit - , Limit - L, Limit - -, Malfunction Alarm, Sensor Alarm  
 Analog output: 4-20 mA  
 Cable: K-DDS25,7-pole connector,7-lead cable +shield,1.5mm<sup>2</sup>,25m

### **DTM-RM1**

### **Disc Temperature Monitor**

Function: Measures the disc temperature. 2 units in the rack, conical and flat-zone  
 Input: TDC-sensor  
 Digital output: Limit 1, Limit 2, Limit 3  
 Analog output: 4-20 mA

<b>CMD-RM1</b>	<b>Control Motor Driver (delivered until Sept. 2004)</b>
Function:	Current driver for stepping motor controlling the rotor position
Power supply:	24-32 Vdc, 4.5A, from an external power unit through the CMA-RM1 unit
Input:	Control signals from the CMI-RM1 unit
Output:	Drive currents for a 5-phase electric stepping motor type VRDM5910/5913
Cable:	10*1.5 mm <sup>2</sup> , 25 m
<b>or CMD-RM2</b>	<b>Control Motor Driver (delivered from Oct. 2004)</b>
Function:	Current driver for stepping motor controlling the rotor position
Power supply:	24-32 Vdc, 4.5A
Input:	Control signals from the CMI-RM1 unit
Output:	Drive currents for a 2-phase electric stepping motor
Cable:	4*1.5 mm <sup>2</sup> , 25 m
<b>CMI-RM1</b>	<b>Control Motor Interface</b>
Function:	Converts control signals from the PLC-system to clock- and direction signals to the CMD-RM1/CMD-RM2 unit
Digital inputs:	Plates Together, Plates Apart, High speed and Holding torque
Digital Outputs:	Control motor alarm
<b>VIM-RM1</b>	<b>Vibration Monitor</b>
Function:	Measure the refiner vibration through an accelerometer transducer
Transducer:	VIM-T2
Digital outputs:	Limit 1, Limit 2
Analog output 1:	4-20 mA
Display:	Led ramp in the front of the unit, 0-25 mm/s, 10 LED's
Cable:	K-VIMS25, 2-pole connector, 4-lead
<b>MPM-RM2</b>	<b>Motor Power Monitor</b>
Function:	Monitor the current signal indicating the main motor load.
Digital Outputs:	Limit 1, Limit 2, Limit 3
Analog input:	4-20 mA
Analog output:	4-20 mA
<b>TVD-RM2</b>	<b>Touchpoint Vibration Detector</b>
Function:	Measure the touchpoint vibration through an accelerometer transducer.
Digital input:	Low gain
Digital outputs:	Limit 1, Limit 2
Input:	From DCA-RM2
Analog output 1:	4-20 mA
Analog output 2:	Audio signal to headset.
Analog output 3:	Spare.
Display:	Led ramp in the front of the unit, 0-100%, 10 leds.
Cable:	K-TVDS25, 4-pole connector, 4-lead cable +shield, 0.25 mm <sup>2</sup> , 25m
<b>POM-RM1</b>	<b>Position Monitor</b>
Function:	Measures the rotor or stator position through an lvd-t-transducer.
Digital outputs:	Limit 1, Limit 2, Limit 3
Transducer:	POT-50
Analog output:	4-20 mA
Cable:	K-POT25, 7-pole connector, 7-lead cable +shield, 0.25 mm <sup>2</sup> , 25m

**HPM-RM1****Hydraulic Pressure Monitor**

Function: Measures the A- and B-chamber force through pressure transducers  
 Transducers: 2-wire Pressure transducer 4-20 mA  
 Digital outputs: A-Limit 1, A-Limit 2, B-Limit 1, B-Limit 2  
 Analog outputs: A: 4-20 mA, B: 4-20 mA

**OTM-RM1****Optional Temp Monitor**

Function: Measures the temperature through PT100 sensors, 2 channels  
 The rack can include up to 6 units.  
 Transducers: 2 each 3-wire PT100 sensors  
 Digital outputs: CH1: Limit 1, Limit 2, CH2: Limit 1, Limit 2  
 Analog outputs: CH1: 4-20 mA, CH2:4-20 mA

**SSM-RM1****Safeset Monitor**

Function: Supervision of the Safeset clutch  
 Transducers: 2 inductive transducers, IG-30  
 Digital outputs: Rotating, Tripped  
 Digital inputs: Reset  
 Cable: K-AT10, 6-pole connector, 4-lead cable +shield, 0.25 mm<sup>2</sup>, 25m  
 and KB-01 Connection Box

### 3. PRINCIPAL OF ADJUSTMENT

See the calibration manual (CAL-DD) for a detailed description.

- The adjustment of the alarm limits is done on the each unit.
- The read-out of alarm limits and levels is displayed on the Display and Control Unit, DCU-RM1.
- The DCU-unit detects the type of unit that is activated, and monitors the appropriate channels and limits.
- The unit is selected by the push-button "DISPLAY LIMITS" on the desired unit.

DCA	2.23
DTM	168
POM	39.46
HPMA	22.5
Lim1	30.0
Lim2	25.0
HPMB	40.5
Lim1	45.0
Lim2	42.5
	*

<b>MENU</b>	<b>Return to NORMAL READOUT</b> <b>(The display returns automatically to the normal readout</b> <b>after app. 2 minutes)</b>
↑	<b>Not used</b>
→	<b>Disables the auto turn off function</b>
↓	<b>Not used</b>
<b>ENT</b>	<b>Not used</b>

#### Automatic turn-off function

The display is automatically turned off approx. 2 minutes after the last activated "DISPLAY LIMITS".

To cancel this function, push "→" button on the DCU-unit.

Next activation of any of the "DISPLAY LIMITS" reactivates the turn-off function.

**4. CONNECTION DIAGRAM K1, K2, K3****RMS SYSTEM POWER****Power supply****K1**

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

**CONTROL MOTOR POWER****Power supply****K2**

CM+U	1	●	+24-32 Vdc
CM+U	2	●	+24-32 Vdc
CM-GND	3	●	0 V (control motor chassis)
CM-GND	4	●	0 V (control motor chassis)

**CONTROL MOTOR DRIVER****Drive currents to the control motor****K3**

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. CONNECTION DIAGRAM K4, K5A, K5B****CONTROL MOTOR INTERFACE Digital inputs and outputs****K4**

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, Alarm	PLC
DO+CM	6 ●	Digital output, Spare	PLC

**OPTIONAL TEMP MONITOR 1 Transducer signals****K5A**

T+OTM11	1 ●	Transducer channel 11, positive
T-OTM11	2 ●	Transducer channel 11, compensation
TS-OTM11	3 ●	Transducer channel 11, negative
T+OTM12	4 ●	Transducer channel 12, positive
T-OTM12	5 ●	Transducer channel 12, compensation
TS-OTM12	6 ●	Transducer channel 12, negative

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

**OPTIONAL TEMP MONITOR 1 Analog outputs, Digital outputs****K5B**

AO+OTM11	1 ●	Analog output, 11, 4-20 mA	Instrum. system
AO-OTM11	2 ●	Analog output, 11, 4-20 mA	Instrum. system
AO+OTM12	3 ●	Analog output, 12, 4-20 mA	Instrum. system
AO-OTM12	4 ●	Analog output, 12, 4-20 mA	Instrum. system
DO+OTM11	5 ●	Digital output, Channel 11, Limit 1	PLC
DO+OTM12	6 ●	Digital output, Channel 11, Limit 2	PLC
DO+OTM13	7 ●	Digital output, Channel 12, Limit 1	PLC
DO+OTM14	8 ●	Digital output, Channel 12, Limit 2	PLC



**4. CONNECTION DIAGRAM K6, K7A, K7B****MOTOR POWER MONITOR****Analog inputs and outputs,  
Digital outputs****K6**

AI+MPM	1 ●	Analog input, 4-20 mA	Instrum. system
AI-MPM	2 ●	Analog input, 4-20 mA	Instrum. system
AO+MPM	3 ●	Analog output, 4-20 mA	Instrum. system
AO-MPM	4 ●	Analog output, 4-20 mA	Instrum. system
DO+MPM1	5 ●	Digital output, Limit 1	PLC
DO+MPM2	6 ●	Digital output, Limit 2	PLC

**OPTIONAL TEMP MONITOR 2****Transducer signals****K7A**

T+OTM21	1 ●	Transducer channel 21, positive
T-OTM21	2 ●	Transducer channel 21, compensation
TS-OTM21	3 ●	Transducer channel 21, negative
T+OTM22	4 ●	Transducer channel 22, positive
T-OTM22	5 ●	Transducer channel 22, compensation
TS-OTM22	6 ●	Transducer channel 22, negative

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

**OPTIONAL TEMP MONITOR 2****Analog outputs, Digital outputs****K7B**

AO+OTM21	1 ●	Analog output, 21, 4-20 mA	Instrum. system
AO-OTM21	2 ●	Analog output, 21, 4-20 mA	Instrum. system
AO+OTM22	3 ●	Analog output, 22, 4-20 mA	Instrum. system
AO-OTM22	4 ●	Analog output, 22, 4-20 mA	Instrum. system
DO+OTM21	5 ●	Digital output, Channel 21, Limit 1	PLC
DO+OTM22	6 ●	Digital output, Channel 21, Limit 2	PLC
DO+OTM23	7 ●	Digital output, Channel 22, Limit 1	PLC
DO+OTM24	8 ●	Digital output, Channel 22, Limit 2	PLC

**4. CONNECTION DIAGRAM K8, K9, K10****HYDRAULIC OIL PRESSURE****Transducer signals****K8**

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

**HYDRAULIC OIL PRESSURE****Analog outputs, Digital outputs****K9**

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

**VIBRATION, K-SIDE****Transducer signals, Analog outputs,  
Digital outputs****K10**

T+VIM	1 ●	Transducer, positive	K-VIMS25 : white + brown
T-VIM	2 ●	Transducer, negative	K-VIMS25 : green + yellow
TS-VIM	3 ●	The cable shield is connected to the ground bar below the rack	
DO+MPM3	4 ●	Digital output, Limit 3 MPM	PLC
AO+VIM	5 ●	Analog output, 4-20 mA	Instrum. system
AO-VIM	6 ●	Analog output, 4-20 mA	Instrum. system
DO+VIM1	7 ●	Digital output, Limit 1	PLC
DO+VIM2	8 ●	Digital output, Limit 2	PLC

**4. CONNECTION DIAGRAM K11, K12, K13****ROTOR POSITION  
K11****Transducer signals, Analog outputs,  
Digital outputs**

TI-POT1	1 ●	Transducer, input negative	K-POT25: white
TI+POT1	2 ●	Transducer, input positive	K-POT25: brown
TE-POT1	3 ●	Transducer, excitation negative	K-POT25: green
TE+POT1	4 ●	Transducer, excitation positive	K-POT25: yellow
TR+POT1	5 ●	Transducer, reference positive	K-POT25: grey
TM+POT1	6 ●	Transducer, measure positive	K-POT25: rose
TS-POT1	7 ●	The cable shield is connected to the ground bar below the rack	
AO+POM1	8 ●	Analog output, 4-20 mA	Instrum. system
AO-POM1	9 ●	Analog output, 4-20 mA	Instrum. system
DO+POM1	10 ●	Digital output, Limit 1	PLC
DO+POM2	11 ●	Digital output, Limit 2	PLC
DO+POM3	12 ●	Digital output, Limit 3	PLC

**DISC TEMP MONITOR  
K12****Analog outputs, Digital outputs**

AO+DTM	1 ●	Analog output, 4-20 mA	Instrum. system
AO-DTM	2 ●	Analog output, 4-20 mA	Instrum. system
DO+DTM1	3 ●	Digital output, Limit 1	PLC
DO+DTM2	4 ●	Digital output, Limit 2	PLC
DO+DTM3	5 ●	Digital output, Limit 3	PLC
DO+DCA5	6 ●	Digital output, DCA Limit 5 (-L)	PLC

**TOUCH POINT MONITOR  
K13****Transducer signals, Analog outputs,  
Digital outputs and inputs**

T+TVD	1 ●	Transducer, positive	K-TVDS25 : white + brown
T-TVD	2 ●	Transducer, negative	K-TVDS25 : green + yellow
TS-TVD	3 ●	The cable shield is connected to the ground bar below the rack	
AO+TVDH	4 ●	Analog output, Headset	Headset
AO-TVDH	5 ●	Analog output, Headset	Headset
AO+TVDA	6 ●	Analog output, Spare	Not used
AO-TVDA	7 ●	Analog output, Spare	Not used
AO+TVD	8 ●	Analog output, 4-20 mA	Instrum. system
AO-TVD	9 ●	Analog output, 4-20 mA	Instrum. system
DO+TVD1	10 ●	Digital output, Limit 1	PLC
DO+TVD2	11 ●	Digital output, Limit 2	PLC
DI+LOGA	12 ●	Digital input, Low gain	PLC

**4. CONNECTION DIAGRAM K14, K15, K18****DISC CLEARANCE AMPLIFIER To RMS-DDS1, Supply output and data input****K14**

ID+DDS1	1 ●	Serial data 1	K-DDS25 : white
ID+DDS2	2 ●	Serial data 2	K-DDS25 : brown
ID-DDS	3 ●	Serial data Common	K-DDS25 : green
	4 ●		No connection
US+	5 ●	Power Supply +	K-DDS25 : yellow
US+	6 ●	Power Supply +	K-DDS25 : grey
US-	7 ●	Power Supply -	K-DDS25 : rose
US-	8 ●	Power Supply -	K-DDS25 : blue

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

**DISC CLEARANCE AMPLIFIER Analog outputs, Digital outputs****K15**

AO+DCA	1 ●	Analog output, 4-20 mA	Instrum. system
AO-DCA	2 ●	Analog output, 4-20 mA	Instrum. system
DO+DCA1	3 ●	Digital output, Limit 1 ( + + )	PLC
DO+DCA2	4 ●	Digital output, Limit 2 ( + )	PLC
DO+DCA3	5 ●	Digital output, Limit 3 ( - )	PLC
DO+DCA4	6 ●	Digital output, Limit 4 ( - - )	PLC
DO+DCAMA	7 ●	Digital output, Malfunction	PLC
DO+DCASA	8 ●	Digital output, Sensor alarm	PLC

**DISC CLEARANCE AMPLIFIER Digital inputs****K18**

DI+DCASC	1 ●	Digital input, DCA Calibrate Coarse	PLC
DI+DCASS	2 ●	Digital input, DCA Calibrate Span	PLC
DI+DCASZ	3 ●	Digital input, DCA Calibrate Zero	PLC
DI+DCASE	4 ●	Digital input, DCA Calibrate Set	PLC

**4. CONNECTION DIAGRAM K16, K17, K19****DISPLAY AND CONTROL UNIT  
K16****Analog inputs and outputs,  
Digital inputs and outputs**

AI+DCRSV	1 ●	Analog input, set limit, 4-20 mA	Instrum. system
AI-DCRSV	2 ●	Analog input, set limit, 4-20 mA	Instrum. system
AO+DCRSV	3 ●	Analog output, set limit, 4-20 mA	Instrum. system
AO-DCRSV	4 ●	Analog output, set limit, 4-20 mA	Instrum. system
DI+DCRON	5 ●	Digital input, Regulator ON	PLC
DI+DCRIN	6 ●	Digital input, Increment set limit	PLC
DI+DCRDE	7 ●	Digital input, Decrement set limit	PLC
DI+DCRST	8 ●	Digital input, Copy DCA to set limit	PLC
DI+DCRAS	9 ●	Digital input, External set limit	PLC
DO+DCRAL	10 ●	Digital output, Regulator alarm	PLC
DO+DCURD	11 ●	Digital output, Ready	PLC
DO+DCUAL	12 ●	Digital output, Sum alarm	PLC

**DISPLAY AND CONTROL UNIT  
K17****Digital inputs and outputs**

DI+TPAU	1 ●	Digital input, Touch-point auto	PLC
DI+TPMA	2 ●	Digital input, Touch-point manual	PLC
DO+TPAL	3 ●	Digital output, Touch Point Alarm	PLC
DO+TPCO	4 ●	Digital output, Touch Point Completed	PLC
DI+FGRE	5 ●	Digital input, FeedGuard Reset	PLC
DO+FGCO	6 ●	Digital output, FeedGuard Contact	PLC
DO+FGAL	7 ●	Digital output, FeedGuard Alarm	PLC
ID+PDU1	8 ●	Serial output, PDU-display	K-PDU3: white
ID+PDU2	9 ●	Serial input, PDU-display	K-PDU3: brown
ID-PDU	10 ●	Common, PDU-display	K-PDU3: green+shield
U+PDU	11 ●	Power supply, PDU-display	K-PDU3: yellow
U-PDU	12 ●	Power supply, PDU-display	K-PDU3: grey

**DISPLAY AND CONTROL UNIT  
K19****Digital inputs and outputs**

D+SYNC	1 ●	Digital input/output, Rotor sync.	PLC
DI+DCU2	2 ●	Digital input, Low A-chamber pressure	PLC
DI+DCU3	3 ●	Digital input, not used	PLC
DI+DCU4	4 ●	Digital input, not used	PLC
DI+DCU5	5 ●	Digital input, not used	PLC
DI+DCU6	6 ●	Digital input, not used	PLC
DO+DCU7	7 ●	Digital output, not used	PLC
DO+DCU8	8 ●	Digital output, not used	PLC

#### 4. CONNECTION DIAGRAM K20, K21

##### SAFESET MONITOR, C-SIDE

##### Transducer signals, Digital in and outputs

###### K20

T1-SS	1 ●	Transducer +	K-AT10: white
T2-SS	2 ●	Transducer M, Motor side	K-AT10: brown
T3-SS	3 ●	Transducer R, Refiner side	K-AT10: green
T4-SS	4 ●	Transducer -	K-AT10: yellow
DO+SSSZ	5 ●	Digital output, Not used	PLC
DO+SSRO	6 ●	Digital output, Safeset rotating	PLC
DO+SSTR	7 ●	Digital output, Safeset tripped	PLC
DI+SSRE	8 ●	Digital input, Reset Safeset	PLC

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

##### SAFESET MONITOR, F-SIDE

##### Transducer signals, Digital in and outputs

###### K21

T1-SS2	1 ●	Transducer +	K-AT10: white
T2-SS2	2 ●	Transducer M, Motor side	K-AT10: brown
T3-SS2	3 ●	Transducer R, Refiner side	K-AT10: green
T4-SS2	4 ●	Transducer -	K-AT10: yellow
DO+SSSZ2	5 ●	Digital output, Not used	PLC
DO+SSRO2	6 ●	Digital output, Safeset rotating	PLC
DO+SSTR2	7 ●	Digital output, Safeset tripped	PLC
DI+SSRE2	8 ●	Digital input, Reset Safeset	PLC

**4. CONNECTION DIAGRAM K22, K23, K24**

**SPARE**

**Transducer signals**

**K22**

T1-SD	1 ●	Transducer 1
T2-SD	2 ●	Transducer 2
T3-SD	3 ●	Transducer 3
T4-SD	4 ●	Transducer 4
T5-SD	5 ●	Transducer 5
T6-SD	6 ●	Transducer 6

**SPARE**

**Analog and Digital outputs**

**K23**

AO+SD1	1 ●	Analog output 1
AO-SD1	2 ●	Analog output 1
AO+SD2	3 ●	Analog output 2
AO-SD2	4 ●	Analog output 2
DO+SD1	5 ●	Digital output
DO+SD2	6 ●	Digital output
DO+SD3	7 ●	Digital output
DO+SD4	8 ●	Digital output

**VIBRATION, F-SIDE**

**Transducer signals, Analog outputs, Digital outputs**

**K24**

T+VIM2	1 ●	Transducer, positive	K-VIMS25 : white + brown
T-VIM2	2 ●	Transducer, negative	K-VIMS25 : green + yellow
TS-VIM2	3 ●	The cable shield is connected to the ground bar below the rack	
AO+VIM2	4 ●	Digital output, Limit 3 MPM	PLC
AO-VIM2	5 ●	Analog output, 4-20 mA	Instrum. system
DO+VIM21	6 ●	Analog output, 4-20 mA	Instrum. system
DO+VIM22	7 ●	Digital output, Limit 1	PLC
	8 ●	Digital output, Limit 2	PLC

**4. CONNECTION DIAGRAM K31, K32, K41, K42****OPTIONAL TEMP MONITOR 3****Transducer signals****K31**

T+OTM31	1 ●	Transducer channel 31, positive
T-OTM31	2 ●	Transducer channel 31, compensation
TS-OTM31	3 ●	Transducer channel 31, negative
T+OTM32	4 ●	Transducer channel 32, positive
T-OTM32	5 ●	Transducer channel 32, compensation
TS-OTM32	6 ●	Transducer channel 32, negative

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

**OPTIONAL TEMP MONITOR 3****Analog outputs, Digital outputs****K32**

AO+OTM31	1 ●	Analog output, 31, 4-20 mA	Instrum. system
AO-OTM31	2 ●	Analog output, 31, 4-20 mA	Instrum. system
AO+OTM32	3 ●	Analog output, 32, 4-20 mA	Instrum. system
AO-OTM32	4 ●	Analog output, 32, 4-20 mA	Instrum. system
DO+OTM31	5 ●	Digital output, Channel 31, Limit 1	PLC
DO+OTM32	6 ●	Digital output, Channel 31, Limit 2	PLC
DO+OTM33	7 ●	Digital output, Channel 32, Limit 1	PLC
DO+OTM34	8 ●	Digital output, Channel 32, Limit 2	PLC

**OPTIONAL TEMP MONITOR 4****Transducer signals****K41**

T+OTM41	1 ●	Transducer channel 41, positive
T-OTM41	2 ●	Transducer channel 41, compensation
TS-OTM41	3 ●	Transducer channel 41, negative
T+OTM42	4 ●	Transducer channel 42, positive
T-OTM42	5 ●	Transducer channel 42, compensation
TS-OTM42	6 ●	Transducer channel 42, negative

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

**OPTIONAL TEMP MONITOR 4****Analog outputs, Digital outputs****K42**

AO+OTM41	1 ●	Analog output, 41, 4-20 mA	Instrum. system
AO-OTM41	2 ●	Analog output, 41, 4-20 mA	Instrum. system
AO+OTM42	3 ●	Analog output, 42, 4-20 mA	Instrum. system
AO-OTM42	4 ●	Analog output, 42, 4-20 mA	Instrum. system
DO+OTM41	5 ●	Digital output, Channel 41, Limit 1	PLC
DO+OTM42	6 ●	Digital output, Channel 41, Limit 2	PLC
DO+OTM43	7 ●	Digital output, Channel 42, Limit 1	PLC
DO+OTM44	8 ●	Digital output, Channel 42, Limit 2	PLC



**4. CONNECTION DIAGRAM K51, K52, K61, K62****OPTIONAL TEMP MONITOR 5 Transducer signals****K51**

T+OTM51	1 ●	Transducer channel 51, positive
T-OTM51	2 ●	Transducer channel 51, compensation
TS-OTM51	3 ●	Transducer channel 51, negative
T+OTM52	4 ●	Transducer channel 52, positive
T-OTM52	5 ●	Transducer channel 52, compensation
TS-OTM52	6 ●	Transducer channel 52, negative

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

**OPTIONAL TEMP MONITOR 5 Analog outputs, Digital outputs.****K52**

AO+OTM51	1 ●	Analog output, 51, 4-20 mA	Instrum. system
AO-OTM51	2 ●	Analog output, 51, 4-20 mA	Instrum. system
AO+OTM52	3 ●	Analog output, 52, 4-20 mA	Instrum. system
AO-OTM52	4 ●	Analog output, 52, 4-20 mA	Instrum. system
DO+OTM51	5 ●	Digital output, Channel 51, Limit 1	PLC
DO+OTM52	6 ●	Digital output, Channel 51, Limit 2	PLC
DO+OTM53	7 ●	Digital output, Channel 52, Limit 1	PLC
DO+OTM54	8 ●	Digital output, Channel 52, Limit 2	PLC

**OPTIONAL TEMP MONITOR 6 Transducer signals****K61**

T+OTM61	1 ●	Transducer channel 61, positive
T-OTM61	2 ●	Transducer channel 61, compensation
TS-OTM61	3 ●	Transducer channel 61, negative
T+OTM62	4 ●	Transducer channel 62, positive
T-OTM62	5 ●	Transducer channel 62, compensation
TS-OTM62	6 ●	Transducer channel 62, negative

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

**OPTIONAL TEMP MONITOR 6 Analog outputs, Digital outputs****K62**

AO+OTM61	1 ●	Analog output, 61, 4-20 mA	Instrum. system
AO-OTM61	2 ●	Analog output, 61, 4-20 mA	Instrum. system
AO+OTM62	3 ●	Analog output, 62, 4-20 mA	Instrum. system
AO-OTM62	4 ●	Analog output, 62, 4-20 mA	Instrum. system
DO+OTM61	5 ●	Digital output, Channel 61, Limit 1	PLC
DO+OTM62	6 ●	Digital output, Channel 61, Limit 2	PLC
DO+OTM63	7 ●	Digital output, Channel 62, Limit 1	PLC
DO+OTM64	8 ●	Digital output, Channel 62, Limit 2	PLC

