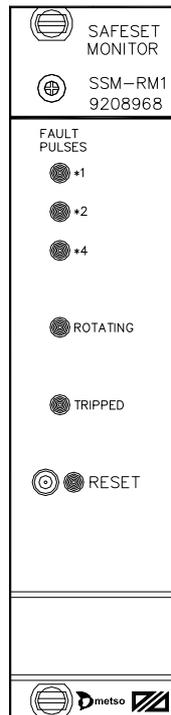




SSM – RM1

VAL0123053 / SKC9208968



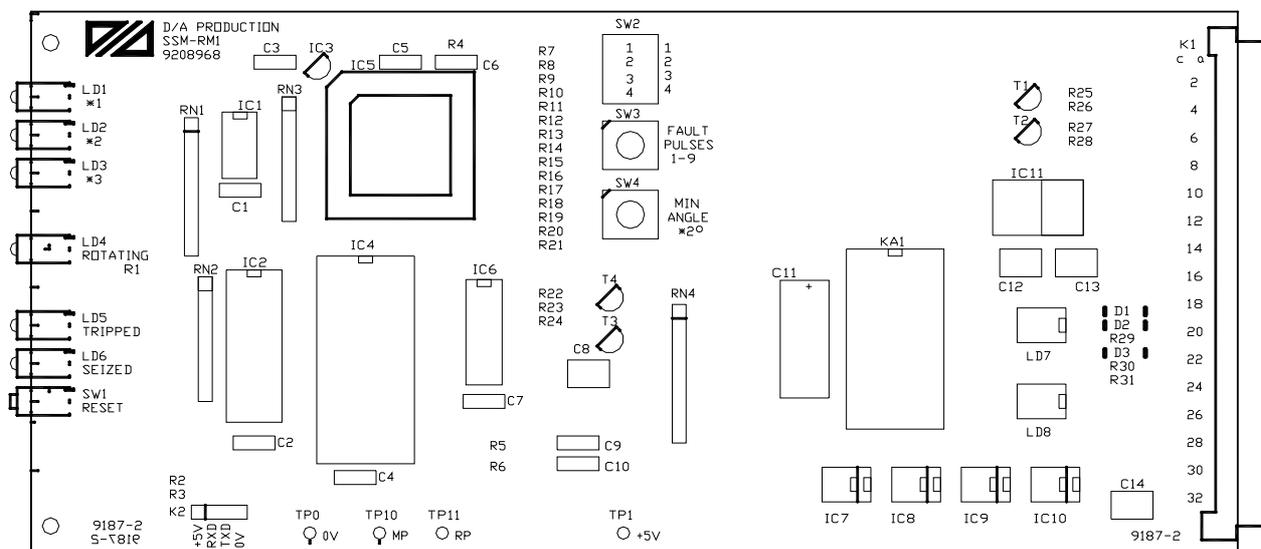
SAFESET MONITOR TO THE RMS-SYSTEM MANUAL



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1 LOCATION OF COMPONENTS



2 DESCRIPTION OF OPERATION

The SSM unit is designed to supervise the Safeset clutch, and measure the direction of rotation. The unit is a part of the RMS-system (Refiner Monitoring System).

The unit measures the signals from two inductive transducers, which is mounted on each side of the clutch. The transducers are mounted in the bottom half of the protecting cover.

The measure index on the refiner side must be made of magnetic steel. The size should be app. 50 * 20 mm, and the distance to the transducers should be 5 mm.

The index on the motor side should be twice as long, 100 * 20 mm, and be coded with a cavity to determine the direction of rotation.

The transducers are driven with 12V dc-voltage, generated from the 24V system power. The inputs to the unit are galvanically isolated by opto-couplers.

Function:

The initial position before the main motor is started:

The input for reset (DI+SSRE) is low.

The output for rotation (DO+SSRO) is low.

The output for tripped clutch (DO+SSTR) is high.

If the unit is in an alarm state, it will be automatically reset when the main motor starts. However this situation should not be permitted and the overhead instrumentation system should reset the unit before the main motor starts.

When the main motor has started:

The first pulse from the transducer on the motor side, sets the output for rotation high and lights up the rotating led in the front.

During speed-up and running:

The difference in pulses from the transducers is compared to an allowed limit. The limit is preset by dip-settings on the board.

If the limit is exceeded, the clutch has tripped and the digital output falls. The led "TRIPPED" in the front of the unit is lit up.

The fault pulse difference can be read by 3 led's in the front. These are binary coded, so a maximum of 8-pulse difference can be indicated.

To prevent sporadic disturbances to generate a false alarm, the pulse difference counter is decreased by 1 pulse per minute.

This supervision is active as long as the main motor is rotating.

When the main motor is stopped:

When the time between pulses on the motor side exceeds a preset limit (20 or 40 seconds), the unit consider the motor as not rotating, and the rotating output is set low.

The other outputs and indicator led's is not changed.

If the output for tripped clutch was set low, it is set high if the "reset" is activated. This can be done by an activation of the input, DI+SSRE or by pushing the front switch. A reset will turn all led's in the front off.

To the DCU-unit in the system, this unit will provide a logical signal for direction of rotation and for tripped clutch. These signals can be used for a software module for measuring the production time for each direction of rotation.

An output signal (D+SYNC) will mirror the input signal from the transducer on the refiner side.

A dip-switch can be set to produce an automatic alarm reset after the clutch is considered not rotating.

Alarm led:

Flashing led - missing pulses on the motor side,

Steady led - missing pulses on the refiner side.

3 TECHNICAL SPECIFICATION

Article no:	SSM-RM1 / VAL0123053 / SKC9208968	
Power supply:	+24 Vdc, $\pm 10\%$, max 0.05 A	
Internal supply:	+5 Vdc, isolated from external power	
Board dimension:	L=220 mm, H=100 mm, T=30 mm (6TE)	
Rotation speed range:	900 to 4800 rpm	
DIP-settings:	Allowed pulse difference	10-pole dip-switch
Max rotation time	1-pole dip-switch	
Auto-reset	1-pole dip-switch	
Not used	2-pole dip-switch	
Panel indicators:	TRIPPED: Red led,	lights for tripped clutch
	1 yellow led, indicates 1 error	
	2 yellow led, indicates 2 errors	
	4 yellow led, indicates 4 errors	
	Rotating: yellow led indicates rotation	
Panel switch:	RESET: push-button switch	

Transducer input:	2 inputs, for inductive transducers, Signal level: 12 Vdc, Galvanically connected to the RMS system power Isolated from the unit by opto-couplers.
External digital input:	Opto isolated digital input from external PLC-unit Impedance: 2 k Ω . Voltage level: 24 Vdc.
DI+SSRE	Reset
External digital outputs:	Opto isolated P-channel fet transistor connected to positive rail of the RMS system power. Max current, 0.1A.
DO+SSRO	Rotation, activated when the clutch is rotating.
DO+SSTR	Tripped, normally activated, released when the clutch has tripped
D+SYNC	Sync-output, mirrors the transducer pulses from the refiner side.

4 SETTINGS

4.1 Function

SW2	off	on	
/1	20s	40s	Max rotation time
/2	manually	auto	Generation of reset
/3	off	on	Measure rotating direction
/4	not used		

4.2 Allowed pulse difference

This is the setting for the allowed difference in pulses between the refiner and motor side of the clutch. If the value is exceeded, the unit will generate an alarm.

SW3	1	2	3	4	5	6	7	8	9
Allowed difference	1	2	3	4	5	6	7	8	9
Default setting.	4								

If set to 0, the function will be disconnected.

5 CONTACT

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