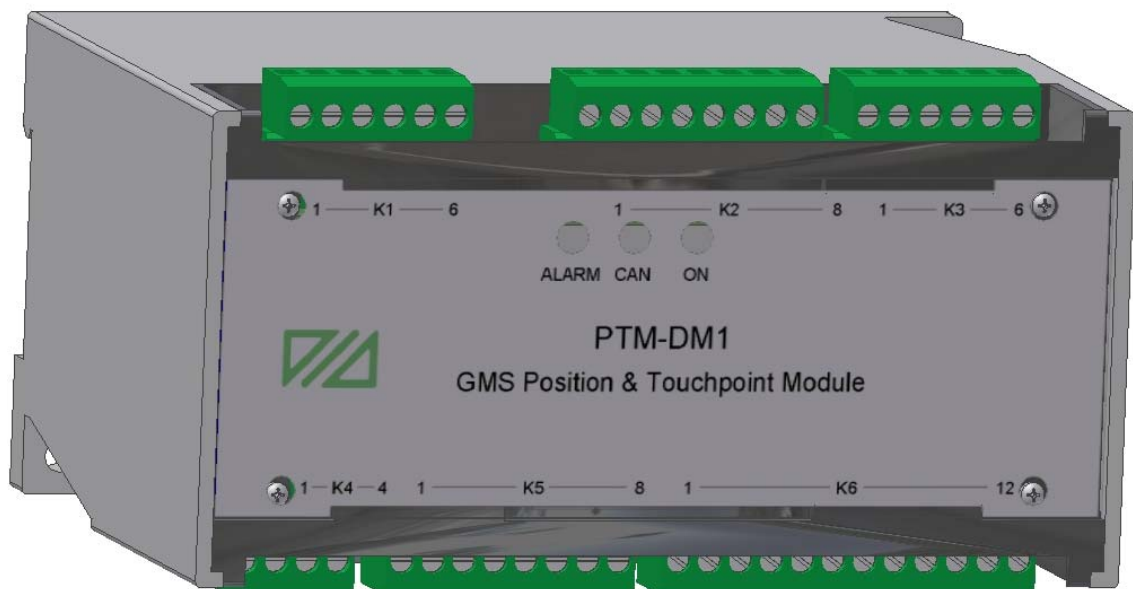


dametric 

PTM-DM1



POSITION & TOUCH POINT MODULE FOR THE GMS SYSTEM USER MANUAL

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1. General

The PTM-DM1 is a measuring module for the Gap Monitor System, GMS, and includes two functions, POM and TVD.

The POM function measures the rotor position in a refiner by a LVDT-sensor mounted on the refiner. It includes two separate channels and can thereby also measure the stator position in a CD-refiner.

The TVD function measures the high frequency vibration caused when the plates contacts during rotation. This signal is used to calibrate the TDC-sensor and the module also includes two separate channels.

The module is connected to the POT- and TVD-sensors on the refiner with special shielded and rugged cables.

Measured data is sent to and received from other GMS modules thru a CAN bus interface but can also be read out via analogue and digital outputs to accommodate existing instrument systems.

Measuring parameters and calibration data are stored in the unit, but can only be modified thru the CAN bus and the GMS software.

The procedure for sensor calibration, parameter settings and alarm limits adjustments are described in the GMS program manual.

The POM (Position Monitor) is calibrated towards the actual POT-sensor (Position Transmitter) that is used.

The TVD (Touch point Vibration Detector) is calibrated using a fixed AC-signal.

The module includes limit circuits, which compares each signal to preset limit values. The GMS software will indicate a green led for an active output or a grey led for a non-active.

A set of parameters is used to control the functionality of the unit. The parameters can only be changed thru the CAN-bus interface. See the Parameters paragraph below.

2. Technical Specification

Supply voltage: 24 VDC, $\pm 10\%$.

Power consumption: Max. 0.5 A, nominal ?A.

Module size: Height=75 mm, Width=150 mm, Depth=110 mm.

Closure: Polycarbonate (30%GV), DIN-rail mounting.

Connections: Plug-in screw connectors, max 2.5mm² cable area.

Panel indicators:

ON, a green led indicates the power supply.

STATUS, a yellow led indicates the status of the communication. The led flashes at app. 1 Hz to indicate that the CAN data is updated.

ALARM, a red led indicates a sum alarm.

POM-1 measurement: Used in all types of refiners.

Measures the rotor position by a LVDT sensor.

Range: 0.00 to 50.00 mm.

Calibration: The actual sensor must be calibrated to the actual module.

POM-2 measurement: Used in CD-refiners.

Measures the stator position by a LVDT sensor.

Range: 0.00 to 50.00 mm. Used in all types of refiners.

Calibration: The actual sensor must be calibrated to the actual module.

TVD-1 measurement: : Used in all types of refiners.

Measures the touch point vibration by a TVD sensor. The TVD-T1, TVD-T2, TVD-T2S or the VIM-T2 sensor can be used

Range: 0 to 100%. The function is calibrated at delivery and is not normally recalibrated in the field.

TVD-2 measurement: Used in CD-refiners.

Measures the touch point vibration by a TVD sensor. The TVD-T1, TVD-T2, TVD-T2S or the VIM-T2 sensor can be used

Range: 0 to 100%. The function is calibrated at delivery and is not normally recalibrated in the field.

Outputs bits:

A number of bits are activated (1) or deactivated (0) due to the status of the following signals.

The GMS program software reads out this information.

<i>Alarm bit</i>	<i>state</i>	<i>terms</i>
Sum alarm	deactivated	any enabled function alarm is deactivated.
POM-1 alarm	active	POM-1 function is working without any alarms.
POM-2 alarm	active	POM-2 function is working without any alarms.
TVD-1-1 limit	deactive	TVD-1 value is higher than the TVD-1/Limit-1 parameter.
TVD-1-2 limit	deactive	TVD-1 value is higher than the TVD-1/Limit-2 parameter.
POM-1-1 limit	deactive	POM-1 value is lower than the POM-1/Limit-1 parameter.
POM-1-2 limit	deactive	POM-1 value is lower than the POM-1/Limit-2 parameter.
POM-1-3 limit	deactive	POM-1 value is lower than the POM-1/Limit-3 parameter.
POM-2-1 limit	deactive	POM-2 value is lower than the POM-2/Limit-1 parameter.
POM-2-2 limit	deactive	POM-2 value is lower than the POM-2/Limit-2 parameter.
POM-2-3 limit	deactive	POM-2 value is lower than the POM-2/Limit-3 parameter.
TVD-1-1 limit	deactive	TVD-1 value is higher than the TVD-1/Limit-1 parameter.
TVD-1-2 limit	deactive	TVD-1 value is higher than the TVD-1/Limit-2 parameter.
TVD-2-1 limit	deactive	TVD-2 value is higher than the TVD-2/Limit-1 parameter.
TVD-2-2 limit	deactive	TVD-2 value is higher than the TVD-2/Limit-2 parameter.

Digital outputs: PLC type PNP-outputs that will generate 24VDC when the output is activated. A deactive output is pulled to 0VDC by a 10 k Ω resistor.

TVD-1-1 limit	deactive	TVD-1 value is higher than the TVD-1/Limit-1 parameter.
TVD-2-1 limit	deactive	TVD-2 value is higher than the TVD-2/Limit-1 parameter.
POM-1-1 limit	deactive	POM-1 value is lower than the POM-1/Limit-1 parameter.
POM-1-2 limit	deactive	POM-1 value is lower than the POM-1/Limit-2 parameter.
POM-1-3 limit	deactive	POM-1 value is lower than the POM-1/Limit-3 parameter.
Analogue outputs:	Two channels, POM-1 and TVD-1, 4-20mA, max load 800Ω, galvanic isolated.	
CAN interface:	GMS protocol.	

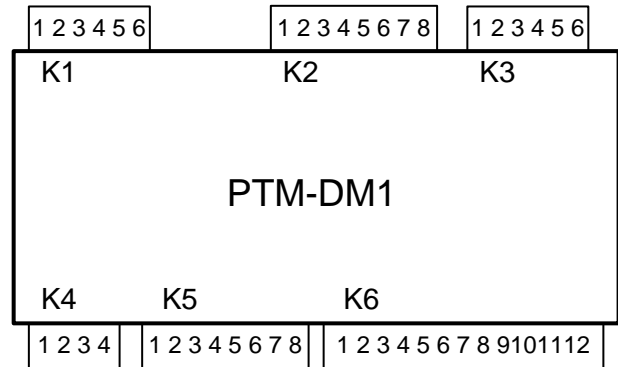
3. Parameters

The following parameters are used by the module and are set up by the GMS software:

Name	description	min	max	unit
POM1-Lim-1 limit:	Sets the value of the POM1/Limit-1	0.00	50.00	mm
POM1-Lim-2 limit:	Sets the value of the POM1/Limit-2	0.00	50.00	mm
POM1-Lim-3 limit:	Sets the value of the POM1/Limit-3	0.00	50.00	mm
POM2-Lim-1 limit:	Sets the value of the POM2/Limit-1	0.00	50.00	mm
POM2-Lim-2 limit:	Sets the value of the POM2/Limit-2	0.00	50.00	mm
POM2-Lim-3 limit:	Sets the value of the POM2/Limit-3	0.00	50.00	mm
TVD1-Lim-1 limit:	Sets the value of the TVD1/Limit-1	0.00	100.00	%
TVD1-Lim-2 limit:	Sets the value of the TVD1/Limit-2	0.00	100.00	%
TVD2-Lim-1 limit:	Sets the value of the TVD2/Limit-1	0.00	100.00	%
TVD2-Lim-2 limit:	Sets the value of the TVD2/Limit-2	0.00	100.00	%
POM1-SumEnable:	Enable POM1 to sum alarm	0	1	
POM2-SumEnable:	Enable POM2 to sum alarm	0	1	
TVD1 SumEnable:	Enable TVD1 to sum alarm	0	1	
TVD2 SumEnable:	Enable TVD2 to sum alarm	0	1	
TVD1 Gain:	Sets the value of the TVD-1 gain	10	500	%
TVD2 Gain:	Sets the value of the TVD-2 gain	10	500	%
POM1 Direction:	Sets the direction of POM-1 signal	0 (normal) 1 (reversed)		

4. Connection Diagram

Conector placing



K1 +24VDC, CAN

K1/1	+24VDC	The power supply to the module
K1/2	0VDC	The power ground
K1/3	CAN-H	CAN-interface H-signal (use twisted pair cable for CAN-H and CAN-L)
K1/4	CAN-L	CAN-interface L-signal
K1/5	CAN-R	CAN-interface termination pole (connect to K1/4 for 120Ω termination)
K1/6	GND	Connect to signal ground

K2 POT-1 sensor Connect the K-POT25 cable

K2/1	Sec. 1	K-POT25/white
K2/2	Sec. 2	K-POT25/brown
K2/3	Sec. com	K- POT 25/green
K2/4	Sec. com	K- POT 25/yellow
K2/5	Primary 1	K- POT 25/grey
K2/6	Primary 2	K- POT 25/pink
K2/7	Shield	K- POT 25/shield. Strip the insulation (~ 3 cm) of the cable at the inlet of the cabinet and interconnect the shield to the signal ground bar.
K2/8	GND	Connect to signal ground.

K3 TVD-1 sensor Connect the K-TVDS25 cable

K2/1	TVD1 +	K-TVDS25/white+brown
K2/2	TVD1 -	K- TVDS 25/green+yellow
K2/3	TVD1 S	K- TVDS 25/shield

K3 TVD-2 sensor Connect the K-TVDS25 cable

K2/4	TVD2 +	K-TVDS25/white+brown
K2/5	TVD2 -	K- TVDS 25/green+yellow
K2/6	TVD2 S	K- TVDS 25/shield

K4 Analog outputs

K4/1	POM1 +	+ 4-20mA, Rotor position value
K4/2	POM1 -	-
K4/3	TVD1 +	+ 4-20mA, Touch point vibration value
K4/4	TVD1 -	-

K5 Digital outputs

K5/1	POM 1-1	POM-1 Limit 1
K5/2	POM 1-2	POM-1 Limit 2
K5/3	POM 1-3	POM-1 Limit 3
K5/4	TVD 1-1	TVD-1 Limit 1
K5/5	TVD 1-2	TVD-1 Limit 2

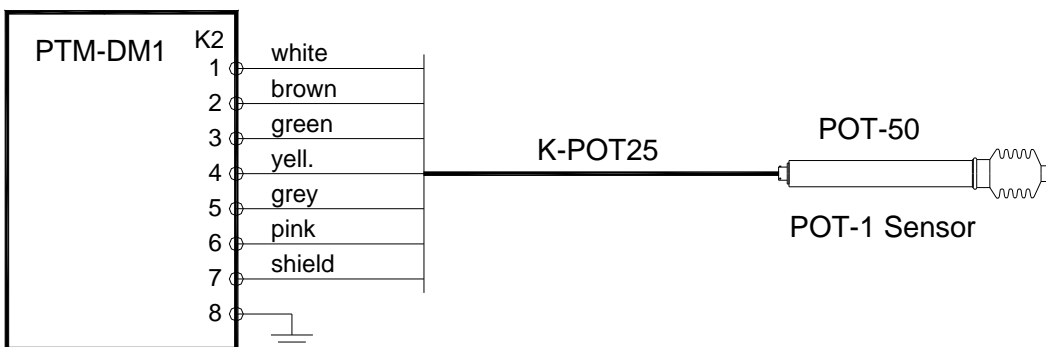
K5/6	PTM 1	PTM Limit 1
K5/7	PTM 2	PTM Limit 2
K4/8	GND	Connect to signal ground.

K6 POT-2 sensor, headset, digital inputs

K6/1	Secondary 1	K-POT25/white
K6/2	Secondary 2	K-POT25/brown
K6/3	Secondary com	K- POT 25/green+yellow
K6/4	Primary 1	K- POT 25/grey
K6/5	Primary 2	K- POT 25/pink
K6/6	Ibutt+	+ I button
K6/7	Ibutt-	- I button
K6/8	Headset +	Headset +
K6/9	Headset -	Headset -
K6/10	DI-PTM1	Digital input PTM1
K6/11	DI-PTM2	Digital input PTM2
K6/12	GND	Connect to signal ground.

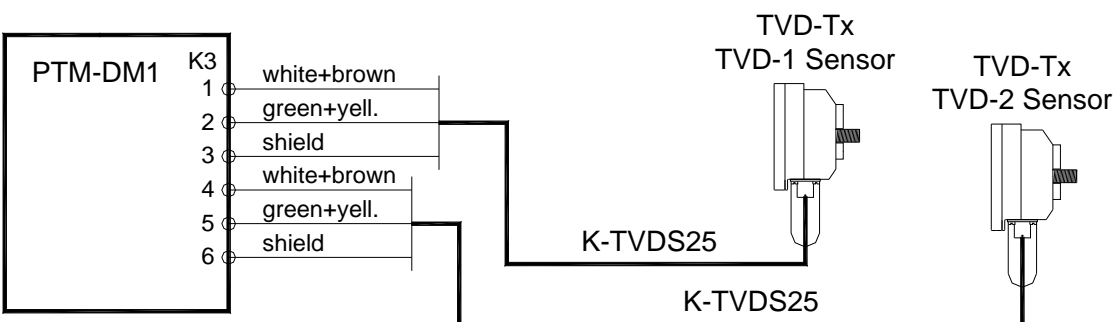
5. Cables and transducers

All cables are 25 meters long at delivery and are cut to appropriate length at the installation.
 Use the POT-1 transducer for the rotor position measurement of the SD, DD, Conflo or CD-refiners.



Use the TVD-1 transducer for the touch point measurement in the SD, DD or Conflo refiners and in the CD-zone in the CD-refiners.

Use the TVD-2 transducer for the touch point measurement in the flat zone in the CD-refiners.



6. Troubleshooting

The green POWER led is not lit.

Check the 24VDC supply at K1/1 and K1/2!

Is the 24VDC between 20 and 28VDC?

Yes: The module is broken, substitute.

No: Check the 24V power supply.

The yellow CAN led is not flashing at app. 1 Hz.

An internal program alarm exists.

Restart the module by first unplug and then plug-in the K1 connector!

Is the CAN led flashing?

Yes: The module is working, report the event and be alert if it repeats.

No: The module is broken, substitute.

The red ALARM led is lit.

An alarm exists. Note. A function alarm will only generate a sum alarm if the actual alarm is enabled to the sum alarm.

Check the GMS software for detailed information!

The POT-X is alarming.

Are the transducer and the cable properly connected?

Yes: The transducer, the cable or the module is broken. Change one the units in the following order: POT-transducer, PTM module, cable K-POT25.

No: Connect properly.

The TVD-X is alarming.

Are the transducer and the cable properly connected?

Yes: The transducer, the cable or the module is broken. Change one the units in the following order: TVD- transducer, PTM module, cable K-TVDS25.

No: Connect properly.

No function is alarming.

An internal PTM module error exists. Replace the module.

If a Panel-PC with Service Panel is used – use this to identify and to fix any problem.

7. Valmet article number

VAL0336349

8. Contact

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