

Preventive Maintenance with Schroeder's TestMate® Contamination Monitor

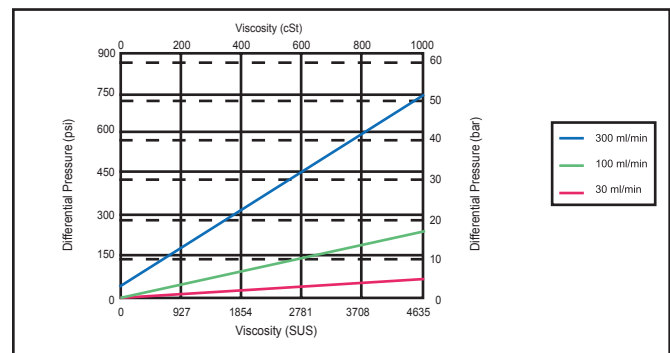
Introduction

Don't let the size of Schroeder's TestMate Contamination Monitor (TCM) fool you! It is among the newest generation of particle monitors that continuously measure solid contamination in fluid. Enclosed in a 4 inch diameter case, the TCM utilizes an optical sensor and measures particles in four sizes: >4, >6, >14 and >21 microns. Measurement results can be output as a contamination code according to ISO 4406 : 1999 or SAE AS 4059 (D).

The TCM is designed for connection to hydraulic and lubrication lines with pressures up to 4350 psi (300 bar) and viscosities up to 4635 SUS (1000 cSt). The unit requires that a small flow of oil (between 30 ml/min and 300 ml/min) is diverted for measurement purposes.

The TestMate Contamination Monitor provides the user with a smaller, tougher and more versatile stationary sensor. It provides instantaneous readings and is able to self-diagnose continuously with error indication via the status LED.

The attractive cost-to-performance ratio makes it especially applicable for OEM applications. Online, real-time condition monitoring allows you to have total predictive maintenance.



Features

- Measures Particles In Four Sizes: >4, >6, >14, >21 microns
- Pipe or Wall Mounting
- ISO or SAE codes can be output in 4-20 mA analog signal
- Compatible with Standard Mineral Fluids & Phosphate Esters
- Display & Keypad can be rotated
- Inlet & Outlet Ports are Interchangeable (bi-directional)



Standard TCM includes:
Unit, FluMos Software, Operation Manual
and Calibration Certificate

Schroeder
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Applications

- Construction Equipment
- Agricultural Machinery
- Mobile and Stationary Mining Equipment
- Test Benches
- Industrial Hydraulic Systems
- Combination with Filter Unit
- Any hydraulic system that requires on-line monitoring

Specifications

Measuring Range: Display ranges between ISO 28/27/26 and 9/8/7
Calibration within the ranges ISO 23/21/19 to 13/11/10

Self-Diagnosis: Continuously with error indication via status LED

Inlet/Outlet 4350 psi (300 bar) max.

Connections Inlet: ISO 228 G1/4 Threaded
Outlet: ISO 228 G1/4 Threaded

Sensor Flow Rate 30 to 300 ml/min

Permissible Viscosity Range 0 to 4635 SUS (1 to 1,000 cSt)

Fluid Temperature Range 32° to 185° F (0° to +85° C)

Power Supply Voltage 9 to 36 VDC residual ripple <10%

Power Consumption 3 WATT max.

Electrical Outputs 4 to 20mA Analog; 0 to 10V Analog (option)
RS485 for communication with CoCos 1000 software

Electrical Specifications 4 to 20 mA Analog output (max. burden 300Ω);
0 to 10 V output (min. load resistor 820Ω)
Limit switching output (Power MOSFET): max. current 1.5A

Ambient Temperature Range -22° to 176° F (-30° to +80° C)

Storage Temperature Range -40° to 176° F (-40° to +80° C)

Relative Humidity max. 95%, non-condensing

Seal Material Mineral Oil: FPM
Phosphate Ester: EPDM

Electrical Safety Class III (low voltage protection)

IP Class IP67

Weight 2.9 lbs (1.3 kg)

Model Code Selection

All models feature an analog electrical output and an RS485 interface for outputting the measured contamination levels and error codes. Additionally, an electronic switching output can be configured to alert the operator about rising or falling contamination levels.

Model	Display	Fluid	Output	Option
TCM	D= display X= no display	H = Hydraulic Fluids E = Phosphate Esters (EPR seals)	A = 4-20 mA V = 0-10 V	Omit = Std in-line M = Flange
TCM-FC*	Flow Conditioning Manifold (includes: TCM-D-H-A-M mounted to a manifold)			

TCM-FC - Manifold will have pressure compensated flow control and orifices for flow conditioning. Customer is required to supply power (9-36 VDC) and pressure 100 psi or greater.

Example:TCM-D-H-A-M

Additional Accessories Available For Use With TCM

Flow Conditioning Manifold with Water Sensor P/N TCM-FC-W and TCM-FC-WD



What's Included

TCM-D-H-A-M (4-20mA only), manifold, TCM-C-3M, 2 pcs. 4mm 1620 microflex hose (p/n SM4-1620-035), TWS-C or TWS-D, TWS Power & Communication cable and 2 test points (p/n SP1620UN716VM) for installation into hydraulic system

Features

- Manifold has pressure compensated flow control and orifices for flow conditioning
- Customer only needs to supply power (9-36 VDC) and pressure 200 psi or greater
- Allows installation in only minutes
- Compensates for varying pressures, flow rate, and viscosities
- Manifold has water sensor TWS-C installed for measurement of percentage saturation

Flow Conditioning Manifold P/N TCM-FC



What's Included

TCM-D-H-A-M (4-20mA only), manifold, TCM-C-3M, 2 pcs. 4 mm 1620 Microflex hose (p/n SM4-1620-035) and 2 test points (p/n SP1620UN716VM) for installation into hydraulic system, FluMoS software

Features

- Manifold will have pressure compensated flow control and orifices for flow conditioning.
- Allows installation in only minutes
- Compensates for varying pressures, flow rate, and viscosities
- Customer to supply power (9-36 VDC) and pressure (200 psi (13.8 bar) or greater)

Communication Kit P/N TCM-RS485/USB



What's Included

Converter box, 115 VAC to 24 VDC adapter, USB driver, FluMoS software, communication & power cables, case

Features

- Enables the user to transfer data from TCM to PC
- Enables user to change TCM settings
- Enables user to have real time monitoring & data storage

Power and Communication Cable P/N TCM-C-3M



What's Included

9.8 ft. (3 m) length cable with M12x8 pin electrical connector on one end and flying leads on the other

Features

- Cable includes leads for power & communication

Power Adapter P/N TCM-PS (without cable)



What's Included

115 VAC to 24 VDC power adapter

Features

- Allows user to connect TCM to standard wall outlet

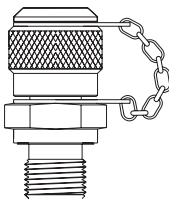
TCM-PS-C-3M



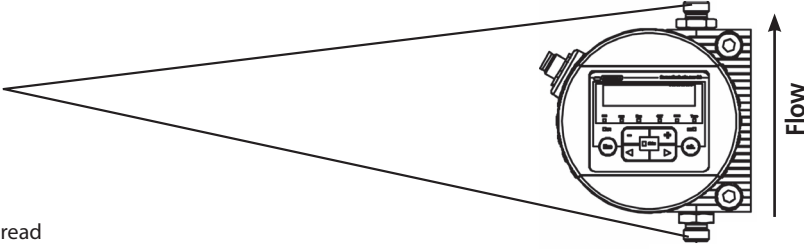
What's Included

TCM-PS and TCM-C-3M in a pre-assembled package

1620 Thread



ISO 228 G 1/4 Thread



Schroeder Check (TestPoint Options for TCM)

G Thread	Sealing System	Part Number
1/4" BSPP	WD Seal Viton	SP1620G14WDM

Microflex Hose (Options for TCM)

Length inches (mm)	ΔP (max) psi (bar)	Part Number
6 (152)	6,500 (450)	SM4-1620-006
12 (305)	6,500 (450)	SM4-1620-012
35 (889)	6,500 (450)	SM4-1620-035
71 (1803)	6,500 (450)	SM4-1620-071

