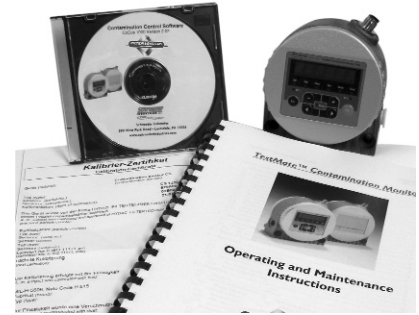


TestMate® Series

TCM TestMate® Contamination Monitor



As Shown: Standard TCM (TCM-D-H-A) includes: Unit, CoCos Software, Operation Manual and Calibration Certificate

Description

Schroeder's TestMate® Contamination Monitor (TCM) is 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 TCM 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.

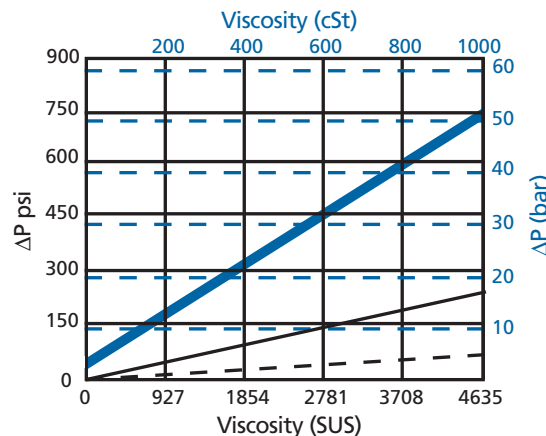
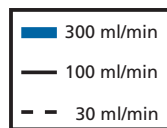
Features

- Measures Particles in Four Sizes: >4, >6, >14, >21 microns
- In-line or Manifold Mounting
- ISO or SAE codes can be output in 4-20 mA analog signal
- Compatible with Standard Mineral Fluids & Phosphate Esters
- Display and Keypad can be rotated (up to 270°)
- Inlet and Outlet Ports are Interchangeable (bi-directional) (without manifold only)

Applications

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

Pressure Requirement



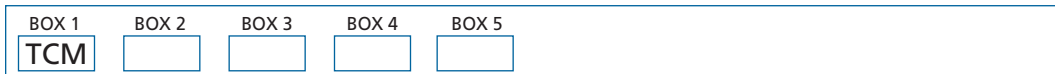
TestMate® Series

Measuring Range:	Display ISO ranges between 28/27/26 and 9/8/7 Calibration within the range ISO 13/11/10 to 23/21/18
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°F to 185°F (0°C 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 10 V 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°F to 176°F (-30°C to +80°C)
Storage Temperature Range:	-40°F to 176°F (-40°C to +80°C)
Relative Humidity:	95%, non-condensing max
Seal Material:	Mineral Oil: Viton® Phosphate Ester: EPR
Electrical Safety Class:	III (low voltage protection)
IP Class:	IP67
Weight:	2.9 lbs (1.3 kg)

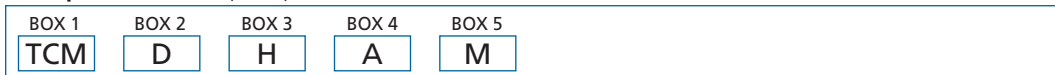
All models feature an analog electrical output and an RS485 interface for outputting the measured contamination levels and error codes. Additionally, an electronic switching output can be configured to alert the operator about rising or falling contamination levels.

Viton® is a registered trademark of DuPont Dow Elastomers.

How to Build a Valid Model Number for a Schroeder TCM:



Example: NOTE: One option per box



BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Model	Display	Fluid	Output	Option
TCM	D = Display X = no	H = Hydraulic Fluids E = Phosphate Esters (EPR seals)	A = 4-20 mA V = 0-10 V	Omit = Std in-line M = Flange

Preferred order codes designate shorter lead times and faster delivery.

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)

What's Included

TCM-D-H-A-M, 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.

Please see page 33 for drawing and dimensions.



Specifications

TCM

TCM-FC

TSU

TMU

TPM

TIM

TMS

CTU

TWS-C

ET-100-6

HMG 3000

EPK

HTB

GS

Trouble
Check Plus

Test Points

Adapters

Hose
Joiners

Microflex
Hose

Pressure
Limiters

Pressure
Gauges

Test Kits

Probalizer

Filtration
Station

MFS, MFD

AMS, AMD

KLS, KLD

AKS, AKD

KLC

X Series

MTS

HFS

SVD

TDS-A

TDS-E

IXU

Appendix

Model Number Selection

Flow
Conditioning
Manifold

P/N TCM-FC

TestMate® Series

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



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

What's Included

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

Communication Kit P/N TCM-RS485/USB



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

What's Included

Converter box, 115 VAC to 24 VDC adapter, USB driver, CoCoS 1000 software, communication & power cables, case

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



Features

- Cable includes leads for power & communication

What's Included

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

Power Adapter P/N TCM-PS



Features

- Allows user to connect TCM to standard wall outlet

What's Included

115 VAC to 24 VDC power adapter

Wireless Communication Kit P/N TCM-WIFI



Features

- Enables the user to transfer data from TCM to PC via wireless communication
- Enables user to change TCM settings
- Enables user to have real time monitoring and data storage

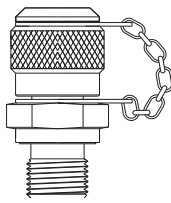
What's Included

Converter box, 115 VAC to 24 VDC adapter, CoCoS 1000 software, communication and power cables, case

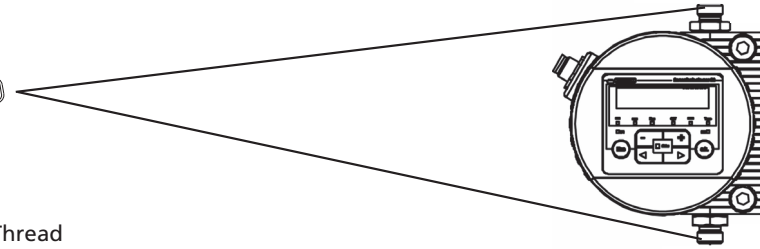
TestMate® Series

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

1620 Thread



ISO 228 G 1/4 Thread



Schroeder Check® Test Points Options For TCM

TCM
TCM-FC

- TSU
- TMU
- TPM
- TIM
- TMS
- CTU
- TWS-C

ET-100-6

HMG 3000

- EPK
- HTB
- GS

Trouble Check Plus

Test Points

Adapters

Hose Joiners

Microflex Hose

Pressure Limiters

Pressure Gauges

Test Kits

Probalizer

Filtration Station

MFS, MFD

AMS, AMD

KLS, KLD

AKS, AKD

KLC

X Series

MTS

HFS

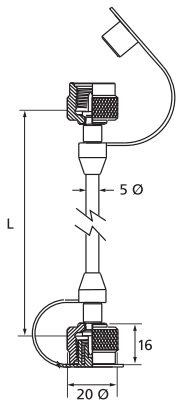
SVD

TDS-A

TDS-E

IXU

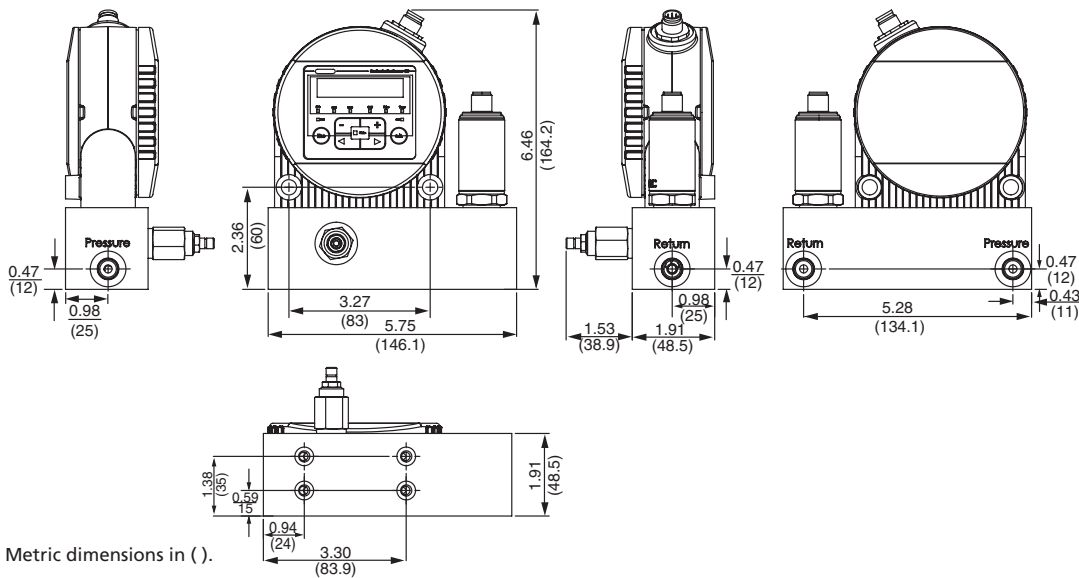
Appendix



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

Microflex Hose Options For TCM

TCM-FC & TCM-FC-W Dimensions



NOTE: TCM-FC and TCM-FC-W use the same manifold. TCM-FC will include a plug where water sensor would be installed.