

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

### Features and Benefits

- Measures Particles in Four Sizes: >4, >6, >14 and >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 (bidirectional) (without manifold only)
- Recommended recalibration: Only every 2 years
- Usable with FluMoS Mobile App when connected to the CSI-C-11



### Description

Schroeder's TestMate® Contamination Monitor (TCM) continuously measures solid contamination in hydraulic 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).

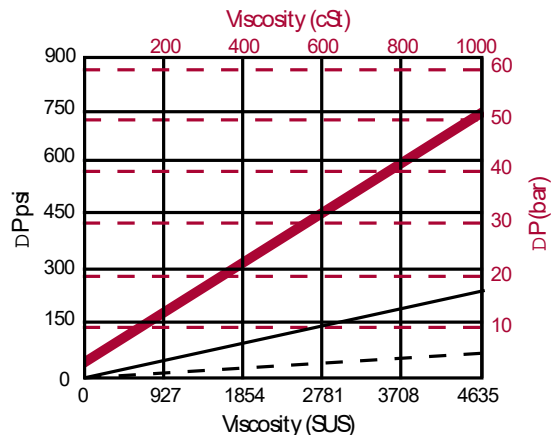
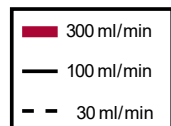
The TCM is designed for connection to hydraulic and lubrication lines with pressures up to 5075 psi (350 bar) and viscosities up to 4635 SUS (1000 cSt). The unit requires that a small flow of oil (between 30 mL/min and 500 mL/min) is diverted for measurement purposes.

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.

### Market 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



CSI-C-11  
Compatible  
Product

#### NOTES

No Water-Glycols

Mobile 424 will not work with unit

Tolerance is +/- 1/2 ISO Code

## Specifications

<b>Measuring Range:</b>	Display ISO ranges between 25/24/23 and 9/8/7 Calibration within the range ISO 13/11/10 to 23/21/18
<b>Contamination Output Code:</b>	<b>Standard:</b> ISO 4406:1999 or SAE AS 4059(D) <b>Optional:</b> ISO4406:1987; NAS 1638 and ISO 4406:1999; SAE AS 4059(D)
<b>Self-Diagnosis:</b>	Continuously with error indication via status LED
<b>Inlet/Outlet:</b>	5075 psi (350 bar) max
<b>Connections:</b>	Inlet: ISO 228 G1/4 Threaded    Outlet: ISO 228 G1/4 Threaded
<b>Sensor Flow Rate:</b>	30 to 500 mL/min
<b>Permissible Viscosity Range:</b>	0 to 4635 SUS (1 to 1,000 cSt)
<b>Fluid Temperature Range:</b>	32°F to 185°F (0°C to +85°C)
<b>Power Supply Voltage:</b>	9 to 36 VDC residual ripple <10%
<b>Power Consumption:</b>	3 Watt max
<b>Electrical Outputs:</b>	4 to 20mA Analog; 2 to 10 V Analog (option) RS485
<b>Electrical Specifications:</b>	4 to 20 mA Analog output (max burden 330Ω); 2 to 10 V output (min. load resistor 820Ω) Limit switching output (Power MOSFET): max current 1.5A
<b>Ambient Temperature Range:</b>	-22°F to 176°F (-30°C to +80°C)
<b>Storage Temperature Range:</b>	-40°F to 176°F (-40°C to +80°C)
<b>Relative Humidity:</b>	95%, non-condensing max
<b>Seal Material:</b>	Mineral Oil: Viton®    Phosphate Ester: EPR
<b>Electrical Safety Class:</b>	III (low voltage protection)
<b>IP Class:</b>	IP67
<b>Weight:</b>	2.9 lbs (1.3 kg)
<b>Mounting Position:</b>	Recommended vertical installation with direction of flow south to north through TCM or manifold block

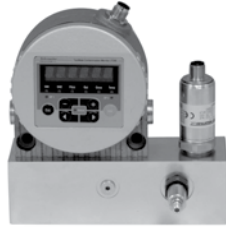
### NOTES:

All Models feature an analog electrical output. Additionally, an electronic switching output can be configured to alert the operator about rising falling contamination levels.

Viton® is a registered trademark of DuPont Dow Elastomers.

## Flow Conditioning Manifold with Water Sensor

Description:  
TCM-FC-W  
P/N 7623774  
Description:  
TCM-FC-WD  
P/N 7632012



### What's Included

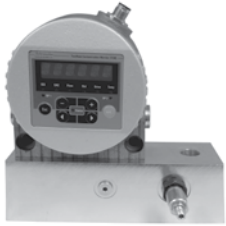
TCM-D-H-A-M (4-20mA only), manifold, TCM-C-3M, 2 pcs. 4mm 1620 microLex hose (p/n SM4-1620-035), TWS-C or TWS-D, TWS Power & Communication cable and 2 test points (p/n SP1620UN716VM) for installation into hydraulic system

### Features

- Manifold has pressure compensated flow control and orifices for flow conditioning
- Customer only needs to supply power (9-36 VDC) and pressure 100 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 percent water saturation

## Flow Conditioning Manifold

Description:  
TCM-FC  
P/N 7623773



### What's Included

TCM-D-H-A-M (4-20mA only), manifold, TCM-C-3M, 2 pcs. 4 mm 1620 MicroLex hose (p/n SM4-1620-035) and 2 test points (p/n SP1620UN716VM) for installation into hydraulic system, FluMoS software  
Please see page 37 for drawing and dimensions.

### 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 100 psi or greater

## Communication Kit

Description:  
TCM-RS485/USB  
P/N 7632013



### 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

## CSI-C-11 Sensor Interface Module

P/N 4066011



### Features

- For WLAN or LAN transmission of data.
- Addition of data stage capabilities.

Description:  
TCM-PS-C-3M  
P/N 7600801



### What's Included

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

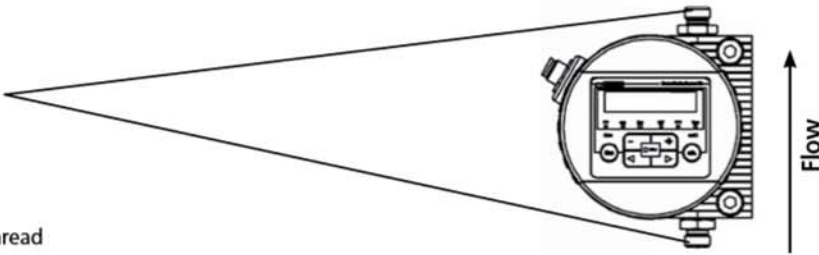
Communication cable and power adapter can be ordered individually.

G Thread	Sealing System	Description	Part Number
1/4" BSPP	WD Seal Viton	SP1620G14WDM	7622704

1620 Thread



ISO 228 G 1/4 Thread



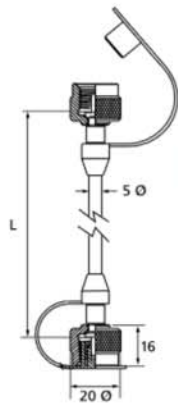
## Schroeder Check

TestPoint Options for TCM

NOTES:  
In-line version of TCM. In-line version cannot be mounted on manifolds

## Microflex Hose Options for TCM

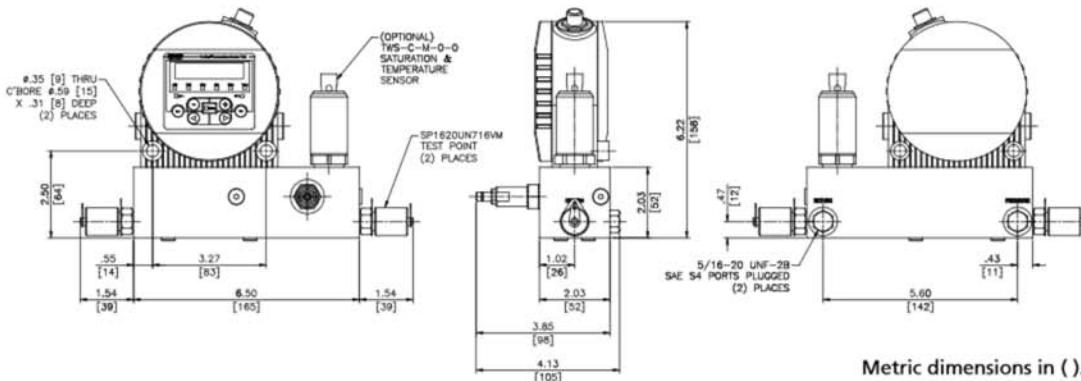
Length inches (mm)	ΔP (max) psi (bar)	Description	Part Number
6 (152)	6,500 (450)	SM4-1620-006	7612174
35 (889)	6,500 (450)	SM4-1620-035	7612175



NOTES:  
TCM shown with optional manifold  
TCM-FC, TCM-FC-W and TCM-FC-WD use the same manifold.  
TCM-FC will include a plugged port for future installation of a water sensor, if desired

## Model Number Selection

NOTES:  
Power supply sold separately. Refer to page 36 for options and part numbers

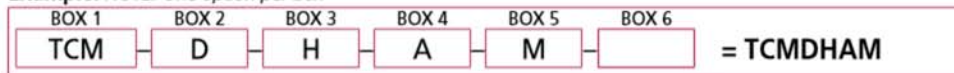


Metric dimensions in ( ).

## 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	Mounting Options
TCM	D = Display X = no	H = Hydraulic Fluids (Viton Seals) E = Phosphate Esters (EPR seals)	A = 4-20 mA V = 2 to 10 V	Omit = Std in-line M = Manifold Porting

BOX 6

Indicator Code
Omit = ISO 4406:1990 or SAE AS 4059(D)
N = ISO 4406:1987 NAS 1638
ISO 4406:1999 SAE AS 4059(D)