



Serviceman™ Diagnostic Meter

Bulletin 3800-SMN
February, 2006

Hand-held
Diagnostic Meter
to Measure Pressure,
Temperature, Flow and
Rotational Speed for Hydraulic
and
Pneumatic Systems

- Easy operation
- Rugged design
- Compact Dimensions
- Two line display
- Auto sensor recognition
- MIN/MAX Memory
- Pressure differential
- External power supply
- Data output for PC



The Serviceman SCM-152 from Parker is a portable diagnostic measuring system – an excellent alternative to conventional mechanical pressure gages – a very rugged, durable test meter that can withstand even the most demanding environmental conditions.

The Serviceman meter uses the latest in sensor recognition technology which eliminates the need for meter adjustment. It's powered by a rechargeable Ni-MH battery system or a 120 volt external power supply for continuous operation

Using Serviceman software (compatible with Windows 98 and newer operating systems) the SCM-152 quickly interfaces with an Excel spread sheet.

The Serviceman field kit is the ideal set of diagnostic tools for maintenance and service personnel in the industrial, mobile and agricultural markets. These units help reduce downtime by recording the best preventative maintenance and diagnostic data available.

Parker Hannifin provides the most complete line of hydraulic and pneumatic diagnostic equipment available today. For more information contact the Quick Coupling Division or your local distributor.

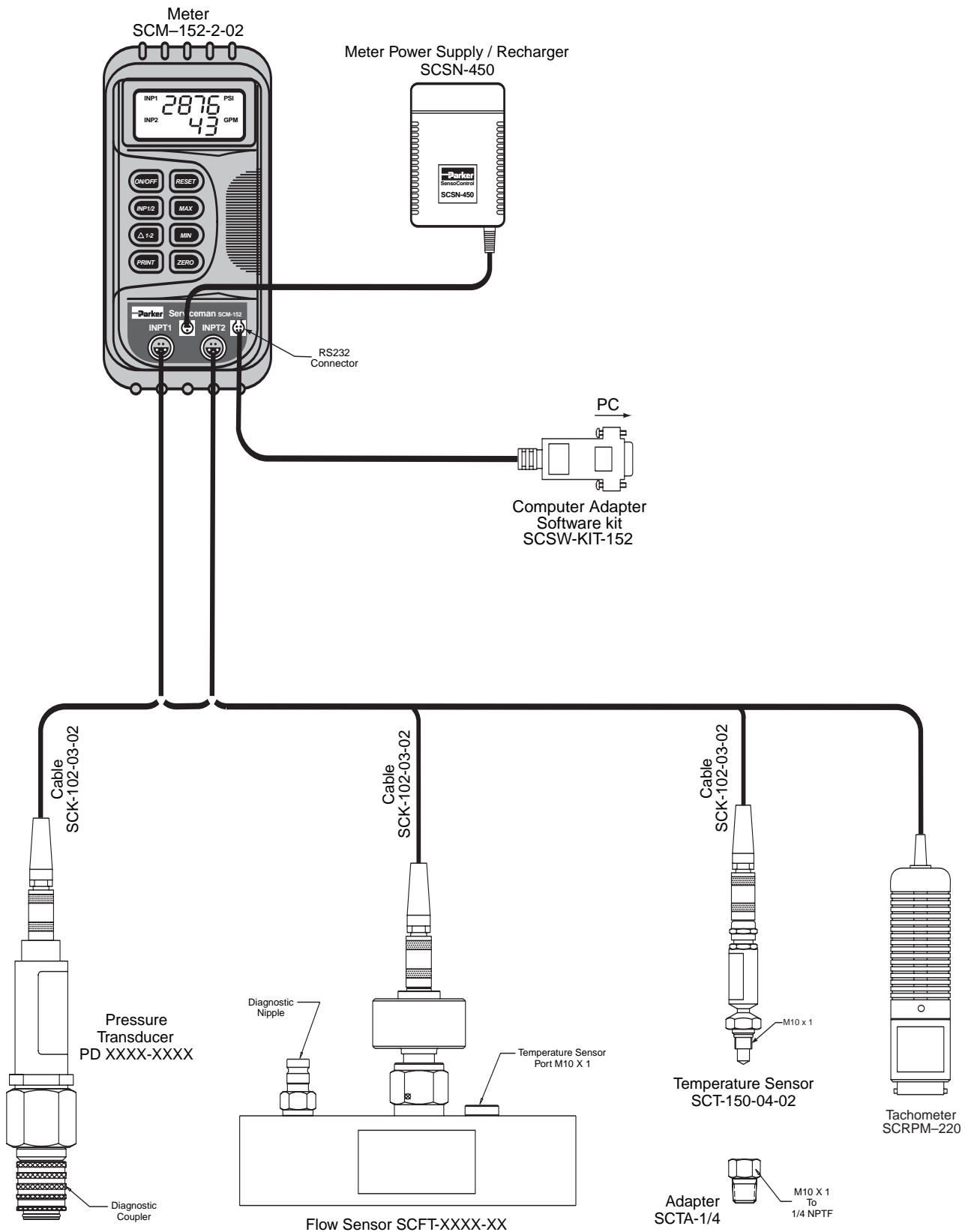


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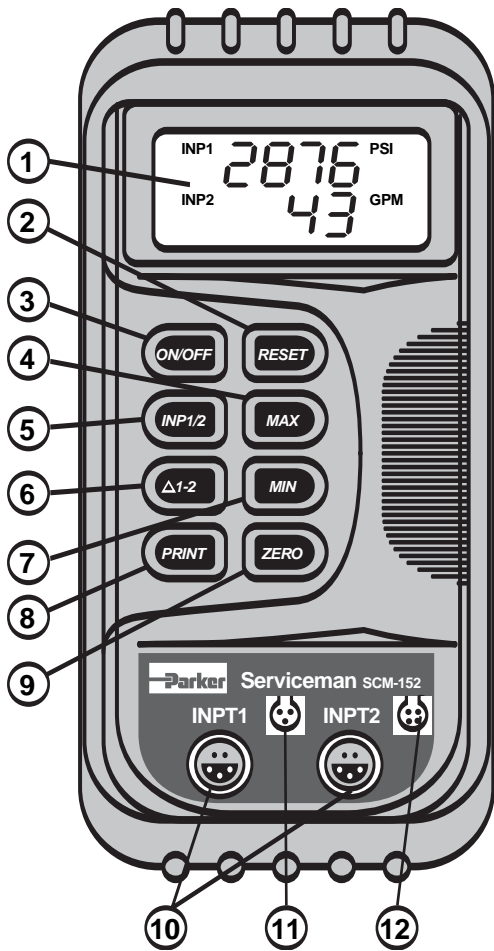
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SensoControl Serviceman Schematic

Measures and Documents Flow, Pressure, Temperature and Rotation speed



SensoControl Serviceman Diagnostic Meter



Function Descriptions

- 1 Two Line Measurement Display
- 2 RESET resets minimum and maximum values to zero
- 3 ON/OFF Switch
- 4 MAX displays maximum value since meter was last reset or turned on
- 5 INP1/2 selects whether meter will display measurement from Input 1 or Input 2
- 6 I1-I2 displays the differential value of Input 1 minus Input 2
- 7 MIN displays minimum value since meter was last reset or turned on
- 8 PRINT sends displayed measurements to PC or printer
- 9 HOLD resets display to zero
- 10 Two Inputs (5 pin)
- 11 External Power Supply Socket
- 12 Data Output via RS232 interface to transmit measured values to PC

Serviceman Technical Data

Meter

- 2 Line Display Shows Both Inputs
- 4 Digit LCD Text Display
- Display of Pressure, Temperature, Flow and Rotational Speed
 - Pressure in PSI and Bar
 - Temperature in °F and °C
 - Flow in GPM and l/min.
 - Rotational Speed in RPM

Housing

- ABS Plastic Housing
- Protective Rubber Cover
- Carrying Strap
- Integral Stand

Inputs

- Two 5-pin push-pull Inputs
- 0-3 Volts (R=470 k)
- 12 Bit A/D Converter
- Automatic Sensor Recognition
- 2 ms Scanning Rate

Ambient Conditions

- Operating Temperatures
32°F to 122°F (0°C to 50°C)
- Storage Temperatures
-4°F to 140°F (-20°C to 60°C)

Output

- RS232 Interface to transfer measured values to a PC. The SCSW-KIT-152 software and adapter kit is required for data transfer to a PC.

Power Requirements

- 9 Volt Rechargeable Ni-MH Battery
- Recharge circuit for use with external power supply.
- 5 Hour Battery Life

Special Note

All Parker SensoControl hand-held diagnostic meters are now equipped with the same 5-pin push-pull style connector ports.

This means accessories such as pressure sensors, temperature sensors, flow meters, tachometers and cables are all interchangeable between Serviceman and Service Master meters.

Pressure Transducer Options

- Six measurement ranges:
Vacuum to 14,500 PSI
- Color coded for easy identification
- Corrosion resistant stainless steel housing
- Accuracy of .5% Full Scale (FS)
- Available with PD, PDP or EMA style diagnostic couplings



Transducer Technical Data



	PD * -0100	PD * -0600	PD * -1500	PD * -4000	PD * -6000	PD * -10000
Measuring Range (Pressure)	-14.5 to 235 PSI	0 to 870 PSI	0 to 2175 PSI	0 to 5800 PSI	0 to 8700 ⁽¹⁾ PSI	0 to 14500 ⁽²⁾ PSI
Color Code	Blue	Green	Yellow	Orange	Red	Red
Measuring Range (Temp.)	-13°F to 221°F	-13°F to 221°F	-13°F to 221°F	-13°F to 221°F	-13°F to 221°F	-13°F to 221°F
Max. Overload Pressure	290 PSI	1450 PSI	3625 PSI	14500 PSI	14500 PSI	14500 PSI
Output Signal (Volts)	-0.2 to 2	0 to 3	0 to 3	0 to 3	0 to 3	0 to 3
Hysteresis (% FS Typical)	0.1	0.05	0.1	0.08	0.05	0.05
Repeatability (%FS Typical)	0.08	0.13	0.13	0.1	0.1	0.1
Non-conformity (%FS)	0.25	0.2	0.2	0.28	0.25	0.25
Response Time	1 ms	1 ms	1 ms	1 ms	1 ms	1 ms
Excitation Voltage	7-12 VDC	7-12 VDC	7-12 VDC	7-12 VDC	7-12 VDC	7-12 VDC

(1) Maximum Rated Pressure for PD Series Couplers is 6000 PSI.
(2) Maximum Rated Pressure for EMA Series Couplers is 9000 PSI.

Materials of Construction

Transducer Stainless steel
Diaphragm Stainless steel
Coupler Zinc Plated steel
Seal Fluorocarbon

Temperature Range

Working -4° to 185°
Fluid -13° to 221°
Storage -40° to 257°

Output

Accuracy 0.5% FS
Load 2m ohms
Response time <1 ms
Output signal to noise 0.1%FS
Resonant frequency 100 KHz

Voltage Requirement

7 to 12 VDC excitation voltage
Permissible ripple ±2% ss
Current requirement5 mA

Cable End (Pin Out)



Pin	Mark	Wire Colors
1	P	yellow
2	T	white
3	+	brown
4	-	green
5	SK	grey

Accessories to Expand the Functionality of the Serviceman



Technical Data

Measuring Range 20 – 10,000 RPM
Measuring Distance 0.1 – 19.5 in
Accuracy 0.5%
Excitation Voltage 7 – 9 VDC
Output Signal 0 – 3 VDC
Resolution5 RPM

SCRPM Tachometer

for Serviceman and Service Master Meters. Displays a precision measurement of rotational speed. 5-pin push-pull style connector.

Part Number
SCRPM-220

Tachometer Adapters

Contact adapter for belt drive/wheel.

Part Number
SCRPM-A-001

Focus adapter for confined areas.

Part Number
SCRPM-A-001



Temperature Sensor

for Serviceman and Service Master. Can be used with Parker flow sensors or with an SCTA-1/4 port adapter. Accuracy: ± 1.5% Full scale
Temperature range: -13°F to 257°F
(-25°C to 125°C)

Part Number
SCT-150-04-02

SensoControl Flow Sensors

These flow sensors are a compact light-weight aluminum diagnostic tool capable of measuring pressure, temperature and flow from a single test point in a hydraulic system.

These flow sensors are designed to be used with a wide variety of hydraulic fluids. This design also minimizes the effect of viscosity changes. These units are manufactured from solid aluminum bar stock and are rated to 6000 PSI* and temperatures of 0°F to +350°F. They are available in four sizes with flow measuring ranges from 0.2 – 160 GPM.

Flow sensors are provided with a choice of PD, PDP or EMA style diagnostic ports and are designed to be used with Serviceman™ and Service Master equipment.



Flow Sensors Technical Data

Pressure Rating*	6000 PSI
	<i>* SCFT-7160 is rated to 5000 PSI</i>
Fluid Temperature Range	0°F to +350°F
Ambient Temperature Range	0°F to +120°F
Media/Compatibility	Petroleum Based Fluids <i>(Contact factory for use with water based hydraulic fluids)</i>
Flow Measurement Accuracy	±1.0% Full Scale
Voltage Input	+7 to 12 VDC <i>(Supplied by SensoControl meter)</i>
Current Requirement	.6mA
Response Time	.50 ms
Viscosity Range	.11 to 50 cSt

Material Specifications

Flow Block	Anodized Aluminum
Turbine	Stainless Steel
Bearings	Stainless Steel
Seal Material	Nitrile
Electrical Connection	.5 Pin Push-Pull Style

How to Order

Measuring Range	Flow Sensor with PD Nipple	Flow Sensor with PDP Nipple	Flow Sensor with EMA Nipple	Inlet/Outlet Port Configuration	Length inches	Height inches	Width inches
0.2 – 4 GPM (1 – 15 l/min)	SCFT-0004-PD	SCFT-0004-PDP	SCFT-0004-EMA	3/4-16 ORB	5.35	4.61	1.46
1 – 16 GPM (4 – 60 l/min)	SCFT-0116-PD	SCFT-0116-PDP	SCFT-0116-EMA	1 1/16-12 ORB	7.48	5.12	2.44
3 – 80 GPM (10 – 300 l/min)	SCFT-0380-PD	SCFT-0380-PDP	SCFT-0380-EMA	1 5/16-12 ORB	7.48	5.28	2.44
5 – 160 GPM (20 – 600 l/min)	SCFT-5160-PD	SCFT-5160-PDP	SCFT-5160-EMA	1 5/8-12 ORB	8.35	5.91	2.44



5 pin to 5 pin Cables
Flow sensor, transducer and temperature probe cables for both Serviceman and Service Master.
Length Part Number
10 ft (3 m) SCK-102-03-02
Extension Cable
16.4 ft (5 m) SCK-102-05-12



Data Cable/Software
for use between the RS232 meter port and a PC
Part Number
SCSW-KIT-152



Adapters
See Catalog 3800 for the available adapters used in conjunction with Serviceman diagnostic equipment.

Serviceman Test Meter Kit



Kit Contents:

- CaseSCC-150
- Serviceman MeterSCM-152-2-02
- Transducers (Quantity 1 or 2)(See Below)
- Cable (Quantity 1 or 2)SCK-102-03-02
- Power Supply – Meter*SCSN-450
- Instruction Manual*SCM-152-TM

* Included with Serviceman Meter

Code for Ordering Serviceman Meter Kits:

PDS3 - X - XX - XX Transducer Pressure Range
(Choose one or two)

Diagnostic Style

CODE	DESCRIPTION
2	PD Style
4	PDP Style
6	EMA3 Style (Female)

CODE	PRESSURE	COLOR
01	-14.5 – +145 PSI	Blue
06	0 – 870 PSI	Green
15	0 – 2175 PSI	Yellow
40	0 – 5800 PSI	Orange
60	0 – 8700 PSI	Red

Additional Transducers

Code for Ordering Separately:

PD XXXXXX - XXXX

Pressure Range

Diagnostic Style

CODE	DESCRIPTION
TA	PD Style
PTA	PDP Style
TEMA3	EMA3 Style (Female)

CODE	PRESSURE	COLOR
0100	-14.5 – +145 PSI	Blue
0600	0 – 870 PSI	Green
1500	0 – 2175 PSI	Yellow
4000	0 – 5800 PSI	Orange
6000	0 – 8700 PSI	Red

PTA - 10000

Pressure Range

Diagnostic Style

DIRECT PORT ONLY
(1/2-14BSP Thread)

PRESSURE	COLOR
0 – 14500 PSI	Red

Flow Sensors

Code for Ordering Separately:

SCFT-XXXX - XXX

Diagnostic Style

Flow Range

CODE	FLOW RATE
0004	0.2 – 4 GPM (1 – 15 l/min)
0116	1 – 16 GPM (4 – 60 l/min)

CODE	DESCRIPTION
PD	PD Style
PDP	PDP Style
EMA	EMA Style