

Power

7.5VDC to 12VDC @ 180mA.
6VAC to 10VAC 60Hz @ 180mA.

Environmental

Operating Temperature: 0° to +60°C.
Storage: 40 to +85°C.

Signal

DC Voltmeter: Impedance > 1M 300% maximum continuous overload. With BCD parallel output, > 100 k.

DC Ammeter: Current devices produce a 100mV drop at full-scale input. CMR 100dB @ 60Hz with 1k imbalance. 300% maximum intermittent overload. 300V maximum meter-to-panel voltage.

DC Process Voltmeter: See table for input ranges. Impedance 1k; 300V maximum meter-to-panel voltage.

DC Process Ammeter: See table for input ranges. These meters produce 200mV drop; 300% maximum continuous overload.

Accuracy

3-1/2 Digit: At 25°C, within 0.1% full scale, ± 1 count.

4-1/2 Digit: At 25°C, within 0.01% full scale, ± 1 count.

Stability

0.005% of full scale, 0.005% of reading/°C.

Response Time

0.05, 1.0, 1.5, or 2.0 seconds (selectable).

Sample Rate

2.5 samples/second.

Display

0.56" (14mm) height, 7 segment LED. 3- or 4- digit plus dummy zero. Negative polarity (-) sign included. Overrange: All digits flash. Selectable decimal point.

Controls and Adjustments

Under access door. DIP switches to select decimal points, dummy zero, response time (noise filtering) and input signal. Multi-turn potentiometers for gain adjustments. DC process meters also include multi-turn potentiometers for zero offset, coarse and fine span, and coarse and fine zero offset adjustments. Socketed scaling resistor or shunt for range changes. Resistor lead can be clipped to eliminate polarity indication.

Accessories

Five female terminal tabs. Door labels. 120VAC to 6VAC plug-in transformer. BCD parallel output meter includes one set of latching ears + keyring.

Options

62: +5VDC power only.

90: NEMA 4X cover.

Support Modules (Include Screw Terminals)

SM90105: 120VAC Power.

SM90107: 12VDC Power.

SM90107-SP0234: SM90107 with 2 – 10VDC Output.

SM90112: 120VAC Power, 2 – 28VDC Output.

DC Meters with Set Points

General Specifications Apply

Set Points

Horizontal segment above polarity indicator lights when set point A output (Pin 3) is on; horizontal segment below polarity indicator lights when set point B output (Pin 4) is on.

Set Point Accuracy

DC Process Meters: Trip point varies considerably less than 1 count from set value. Hysteresis is typically 6 counts.

Outputs

Limit: Two open collector transistor switches for each of the two set points. For each set point, one transistor switch turns on and the other turns off when the limit is exceeded. Maximum voltage at any output pin not to exceed 50V. ON is transistor switched to ground. Maximum load capability is 100mA resistive. With a 100mA current, voltage at the output is 1.1V. Maximum dissipation is 350mW per output. OFF is transistor switch off. Maximum leakage at 50V is 50 μ A.

Control Inputs

Invert set point A output, invert set point B output, set point A latch enable, set point B latch enable. Closure to ground (< 0.8V) enables function. These inputs are internally pulled up to +5V through a 10k resistor. They are diode protected to 50V.

Controls and Adjustments

Potentiometers for gain and fine span adjustments, set point A and set point B; resistor lead can be clipped to eliminate polarity indication.

Options

Support Modules (Include Screw Terminals)

SM90105: 120VAC Power.

SM90106: 120VAC Power, Open Collector.

SM90107: 12VDC Power.

SM90108: 12VDC Power, Open Collector.

SM90108-SP0234: SM90108 with 2 – 10VDC Output.

SM90109: 120VAC Power, Relays.

SM90111: 12VDC Power, Relays.

SM90111-SP0234: SM90111 with 2 – 10VDC Output.

SM90112: 120VAC Power, 2 – 28VDC Output.

SM90113: 120VAC Power, 2 – 28VDC, Open Collector.

SM90114: 120VAC Power, 2 – 28VDC, Relays.

DC Meters with Parallel BCD Outputs

General Specifications Apply

Power

+5VDC @ 150mA.

Inputs

Control Inputs: Inputs whose closure to ground enables meter functions. Ground is < 0.6V. Open or positive voltage condition is > 3V. All control inputs are internally pulled up through a 10k resistor to +5V. Open or positive voltage cannot exceed 50V.

Digit Enable: One pin for each data digit. Closure to ground enables data outputs. Open or positive voltage turns data outputs off.

Hold: Closure to ground inhibits BCD output and display updating. Open or positive voltage permits free running.

BCD/BCD Complement: Open or positive voltage for positive true BCD data format (off true). Closure to ground for BCD complement or negative true BCD data format (on true).

Outputs

Open collector transistors (maximum 50V). Maximum load capability is 100mA. Voltage at output is < 1.1V at 100mA. Maximum leakage current is 50 μ A @ 50V.

Data: Full parallel open collector 8421 BCD data; positive or negative true, buffered and latching with hold input. Data updates 2.5 times/sec in free run mode. Depending on pull-up resistor values, outputs are compatible with CMOS, TTL and other input voltage levels up to 50V.

Options

Support Modules (Include Screw Terminals)

SM90100: 5VDC Power.

SM90101: 120VAC Power.

SM90102: 120VAC Power, 2 – 28VDC output.

SM90103: Optically Isolated, 120 VAC Power, 12 VDC Output.

DC Meters

DC Voltmeter 3-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7801	-	-	19.99 mV	19.99	> 1000 MΩ
7802	7318	2491	199.9 mV	199.9	> 1000 MΩ
7803	7319	2492	1.999 V	1.999	> 1 MΩ
7804	7320	2493	19.99 V	19.99	> 1 MΩ
7805	7321	2494	199.9 V	199.9	> 1 MΩ

DC Voltmeter 4-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7218	-	2091	199.99 mV	199.99	> 1000 MΩ
7219	-	2092	1.9999 V	1.9999	> 1 MΩ
7220	-	2093	19.999 V	19.999	> 1 MΩ
7221	-	2094	199.99 V	199.99	> 1 MΩ

DC Process Voltmeter 3-1/2 digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7110	7308	2471	1 - 5 V DC	Adjustable 199 - 1999	> 100 kΩ
7116	7311	2474	0 - 1 V DC		> 100 kΩ
7117	7312	2475	0 - 2 V DC		> 100 kΩ
7118	7313	2476	0 - 5 V DC		> 100 kΩ
7119	7314	2477	0-10 V DC		> 100 kΩ
7120	7315	2478	0-100 VDC		> 100 kΩ
7121	7316	2479	0-200 VDC	> 100 kΩ	

DC Process Voltmeter 4-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7208	-	2071	1 - 5 V DC	Adjustable 1999 - 19999	> 100 kΩ
7211	-	2074	0 - 1 V DC		> 100 kΩ
7212	-	2075	0 - 2 V DC		> 100 kΩ
7213	-	2076	0 - 5 V DC		> 100 kΩ
7214	-	2077	0-10 V DC		> 100 kΩ
7215	-	2078	0-100 VDC		> 100 kΩ
7216	-	2079	0-200 VDC		> 100 kΩ

DC Ammeter 3-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7843	-	-	1.999 μA	1.999	49.9Ω
7844	-	-	19.99 μA	19.99	499Ω
7845	7355	2584	199.9 μA	199.9	499 Ω
7846	7356	2585	1.999 mA	1.999	49.9Ω
7847	7357	2586	19.99 mA	19.99	5.0 Ω
7848	7358	2587	199.9 mA	199.9	0.50Ω
-	7359	2588	1.999 A*	1.999	0.05 Ω (A 96500)

DC Ammeter 4-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7255	-	2184	199.99 μA	199.99	49.9 Ω
7256	-	2185	1.9999 mA	1.9999	499 kΩ
7257	-	2186	19.999 mA	19.999	5.0 Ω
7258	-	2187	199.99 mA	199.99	0.50 Ω
7259	-	2188	1.9999 A *	1.9999	0.05 Ω (A 96500)

DC Process Ammeter 3-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7101	7301	2464	4-20 mADC	Adjustable 199 - 1999	15 Ω
7102	7302	2465	10-50 mADC		5 Ω
7104	7304	2467	0 - 1 mADC		200 Ω

DC Process Ammeter 4-1/2 Digit					
P/N	P/N	P/N			
No Outputs	Setpoints	BCD Outputs**	Input Signal	Display Range	Input Impedance
7201	-	2064	4 - 20 mA	Adjustable 1999 - 19999	15Ω
7202	-	2065	10-50 mA		5Ω
7204	-	2067	0 - 1 mA		200Ω

*Includes 2 A External Shunt.
**For Tristate contact factory.



DC METERS	CUTOUT	REAR VIEW CONNECTIONS	FRONT VIEW ADJUSTMENTS
No Outputs	23	18	2
Setpoints	23	18	2
BDC Outputs**	23	19	2

SEE FIGURES ON PAGE 44. SOME CONTROLS SHOWN IN THE DRAWINGS ARE NOT AVAILABLE ON ALL UNITS.