

Sifam Tinsley MCS Series Analog Switchboard Meters



PK-103-131-LSSC-C7

MCS Series analog switchboard meters from Sifam Tinsley offer Class 1 accuracy, complying with American ANSI-C39.1 (1981) specifications. They feature rugged design for use in the most demanding applications.

All models feature heavy-gauge deep-drawn steel cases with an enameled matte black finish, combining sturdiness with elegance. Panel mounting is via four integral studs.

Front covers feature a bezel and window made from a single piece of flame-retardant polycarbonate molding with a black matte finished bezel area.

Features

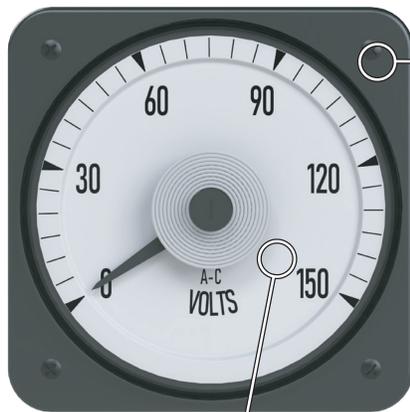
- Pivot and jewel mechanism
- Parallax error-free platform dials
- Metal casing
- Class 1 accuracy
- Amps, volts, frequency, and power factor meters
- AC meters provide true RMS measurement
- Terminals suitable for use with insulated M5 ring-type lugs

Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process and motor control



Meter face scales span 250° with parallax error-free platform dials. Standard dials are white matte with black printed divisions and bare knife-edge pointers. A specially contoured window enhances readability by minimizing reflection from adjacent light sources.



**1% accuracy
250 degree scale**

**Terminal studs
10-32 thread**

**Drop-in replacement to
Yokogawa Switchboard series**



**Mounting studs
1/4" x 28 thread**

**Drawn steel case
with matte black
powder coating**

**Metal case provides
better shock/vibration
EMI/EMC performance**

MCS Series Analog Switchboard Meters

Models available:

- AC Voltmeter
- AC Ammeter
- AC Power Factor
- Frequency meter
- DC Voltmeter
- DC Ammeter

Sifam Tinsley MCS Series Analog Switchboard Meters



Sifam Tinsley MCS Series Analog Switchboard Meters General Specifications

<i>Electrical</i>	
Max. Terminal Voltage	600VAC RMS / 600VDC to ground
Response Time	3 seconds maximum
<i>Mechanical</i>	
Case Material	Drawn steel case with matte black powder coating
Cover Material	UL94 V-0 polycarbonate molding with matte black finished bezel area
Mounting Stud Size	4 x 1/4 in - 28 UNF stud
Mounting Torque	4 lb•in [0.4 N•m]
Cutout Size	4.06 in [103.0 mm]
Full Scale Length	6.9 in
Full Scale Deflection Angle	250°
<i>Connection Properties</i>	
Terminal Type	#10-32 terminal stud with nut
Connection Type	Insulated ring lug, M5 size
Terminal Torque	13 lb•in [1.5 N•m]
<i>Environmental Properties</i>	
NEMA Rating	NEMA 3 (IP54)
Operating Temperature Range	0 to 40 °C [32 to 104 °F].
Storage Temperature Range	-10 to +50 °C [14 to 122 °F].
Extreme Temperature Range	-20 to +65 °C [-4 to +149 °F].
Humidity	Max 80% relative humidity at 31 °C [87.8 °F]; 50% relative humidity at 60 °C [140 °F]
Max Altitude	6561.68 ft [2000 m]
<i>Compliance</i>	
Applicable Standards	ANSI C39.1
Agency Approvals	UL Listed File E471457, CE To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Sifam Tinsley MCS Series



Analog Switchboard True RMS AC Ammeters



[PK-103-131-LSSC-C7](#)

Sifam Tinsley MCS Series Analog Switchboard True RMS AC Ammeters Selection Guide

Part Number	Price	Rating	Display Scale	Frequency Rating	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Burden Data		Drawing
									Impedance	Volt-Ampere	
<u>PK-103-131-MTMT-C7</u>	\$86.00	0-10 A (Self-contained)	0-10 A AC	50/60 Hz	±1% of full scale	2x continuous, 10x for 0.5 seconds, repeated 10 times in a 1 minute interval.	2300VAC between electronic circuit and case for 1 minute	10 A UL approved fuse with voltage rating no less than voltage of current being measured	0.005 Ω @ 10 A, 60 Hz	< 0.5 VA	PDF
<u>PK-103-131-LSNT-C7</u>	\$86.00	0-5 A (Transformer rated)	0-50 A AC						PDF		
<u>PK-103-131-LSPK-C7</u>	\$86.00		0-100 A AC						PDF		
<u>PK-103-131-LSSC-C7</u> <u>PK-103-131-LSSC-C7</u>	\$86.00		0-400 A AC						PDF		
<u>PK-103-131-LSSN-C7</u>	\$86.00		0-800 A AC						PDF		
<u>PK-103-131-LSTE-C7</u>	\$86.00		0-1600 A AC						PDF		
<u>PK-103-131-LSTV-C7</u>	\$86.00		0-2500 A AC						PDF		

Sifam Tinsley MCS Series



Analog Switchboard True RMS AC Voltmeters



PK-103-021-SJSJ-C7

Sifam Tinsley MCS Series Analog Switchboard True RMS AC Voltmeters Selection Guide

Part Number	Price	Rating	Display Scale	Frequency Rating	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Burden Data		Drawing
									Impedance	Volt-Ampere	
<u>PK-103-021-PZPZ-C7</u>	\$86.00	150 VAC (Self-contained)	0-150 VAC	50/60 Hz	±1% of full scale	1.2x continuous	2300 VAC between electronic circuit and case for 1 minute	Direct connection - UL/CSA approved 1 A fast-acting fuse with breaking capacity of 35 A or greater, voltage no less than highest circuit voltage connected to meter.	45.5 kΩ @ 120 VAC	< 0.8 VA @ 150 VAC	<u>PDF</u>
<u>PK-103-021-RXRX-C7</u>	\$86.00	300 VAC (Self-contained)	0-300 VAC								<u>PDF</u>
<u>PK-103-021-SJSJ-C7</u>	\$86.00	600 VAC (Self-contained)	0-600 VAC								<u>PDF</u>
<u>PK-103-021-PZSJ-C7</u>	\$86.00	150 VAC (Transformer rated)	0-600 VAC								<u>PDF</u>
<u>PK-103-021-PZUP-C7</u>	\$86.00	150 VAC (Transformer rated)	0-6000 VAC								<u>PDF</u>
									PT connection: Fuse Potential Transformer (PT) to NEC requirements		

Sifam Tinsley MCS Series



Analog Switchboard Power Factor Meters



PK-103-412-FCAD-C6

Sifam Tinsley MCS Series Analog Switchboard Power Factor Meters Selection Guide													
Part Number	Price	Circuit Type	Rating (Potential Circuit)	Rating (Current Circuit)	Display Scale	Frequency Rating	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Burden Data		Drawing
											Impedance	Volt-Ampere	
PK-103-412-FCAD-C6	\$319.00	Single phase, 2-wire	120 VAC (Direct connection and transformer rated)	5 A (Transformer rated)	0.5 (lag) 1 0.5 (lead)	60 Hz	±1% of fiducial value	Potential circuit: 1.2 x continuous, 2x for 5 seconds Current circuit: 1.2 x continuous, 10x for 5 seconds	2600 VAC RMS between electronic circuit and case for 1 minute	Potential circuit (direct connection): UL/CSA-approved 1 A fast acting fuse with breaking capacity of 35 A or greater, voltage no less than highest circuit voltage connected to meter. Potential circuit (PT connection): Fuse Potential Transformer (PT) to NEC requirements Current circuit: CT circuits should not be fused	Potential circuit: 95.2 kΩ @ 110 V Current circuit: 0.036 Ω @ 5 A	Potential circuit: < 4.5 VA	PDF
PK-103-402-FEAD-C6	\$319.00	3-phase, 3-wire and 4-wire, balanced system	240 VAC (Direct connection and transformer rated)								Potential circuit: 124.9 kΩ @ 415 V Current circuit: 0.036 Ω @ 5 A	Current circuit: < 2 VA	PDF

Sifam Tinsley MCS Series



Analog Switchboard Frequency Meters



PK-103-372-PNAN-AN

Sifam Tinsley MCS Series Analog Switchboard Frequency Meters Selection Guide											
Part Number	Price	Rating	Display Scale	Frequency Rating	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Burden Data		Drawing
									Impedance	Volt-Ampere	
<u>PK-103-372-PNAN-AN</u>	\$86.00	120 VAC (Transformer rated)	55-65 Hz	55-65 Hz	±0.15 Hz	1.2x continuous	2300 VAC between electronic circuit and case for 1 minute	Direct connection: UL/CSA approved 1 A fast-acting fuse with breaking capacity of 35 A or greater, voltage no less than highest circuit voltage connected to meter. PT connection: Fuse Potential Transformer (PT) to NEC requirements	27 KΩ @ 120 V	< 0.53 VA @ 120 V	PDF

Sifam Tinsley MCS Series



Analog Switchboard DC Ammeters



PK-103-121-CAPK

Sifam Tinsley MCS Series Analog Switchboard DC Ammeters Selection Guide

Part Number	Price	Rating	Display Scale	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Burden Data		Drawing
								Terminal Resistance (±15%)	Calibrated 2-way Shunt Lead Resistance	
<u>PK-103-111-LSLS</u>	\$86.00	0-5 A (Self-contained)	0-5 A DC	±1% of full scale	2 x continuous, 10x for 0.5 seconds, repeated 10 times in 1 minute interval	2300 VAC / 3200 VDC between electronic circuit and case for 1 minute	5 A UL-approved fuse with voltage rating no less than voltage of current being measured	0.01 Ω	N/A	<u>PDF</u>
<u>PK-103-111-NGNG</u>	\$86.00	0-20 A (Self-contained)	0-20 A DC				20 A UL-approved fuse with voltage rating no less than voltage of current being measured	0.0025 Ω		<u>PDF</u>
<u>PK-103-121-CAPK</u>	\$86.00	50 mV (Shunt rated)	0-100 A DC				NA	12.5 Ω	<u>PDF</u>	
<u>PK-103-121-CARL</u>	\$86.00		0-200 A DC				NA	12.5 Ω	<u>PDF</u>	
<u>PK-103-121-CASC</u>	\$86.00		0-400 A DC				NA	12.5 Ω	0.035 Ω ¹	<u>PDF</u>
<u>PK-103-121-CASM</u>	\$86.00		0-750 A DC				NA	12.5 Ω	<u>PDF</u>	
<u>PK-103-121-CASS</u>	\$86.00		0-1000 A DC				NA	12.5 Ω	<u>PDF</u>	

1) 2-way lead resistance. Recommend maximum 5.5 ft 14 AWG stranded uncoated copper wire (Class B Stranding). Resistance may vary depending on wire gauge, material, and stranding class.

Sifam Tinsley MCS Series



Analog Switchboard DC Voltmeters



PK-103-011-PZPZ

Sifam Tinsley MCS Series Analog Switchboard DC Voltmeters Selection Guide									
Part Number	Price	Rating	Display Scale	Accuracy	Overload Rating	Dielectric Withstand	Fuse	Sensitivity	Drawing
PK-103-011-NTNT	\$86.00	0-50 VDC (Self-contained)	0-50 VDC	±1% of full scale	1.2x continuous	2300 VAC / 3200 VDC between electronic circuit and case for 1 minute	UL/CSA approved 1 A fast-acting fuse with breaking capacity of 35 A or greater, voltage no less than highest circuit voltage connected to meter.	1,000 Ω/V	PDF
PK-103-011-PBPB	\$86.00	0-75 VDC (Self-contained)	0-75 VDC						PDF
PK-103-011-PZPZ	\$86.00	0-150 VDC (Self-contained)	0-150 VDC						PDF
PK-103-011-SCSC	\$86.00	0-400 VDC (Self-contained)	0-400 VDC						PDF
PK-103-011-SJSJ	\$86.00	0-600 VDC (Self-contained)	0-600 VDC						PDF

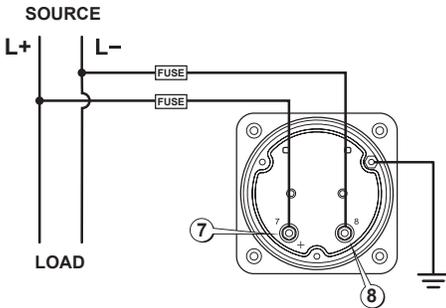
Sifam Tinsley MCS Series Analog Switchboard Meters



Wiring Diagrams

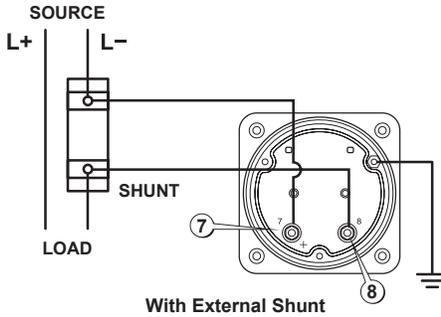
DC Voltmeter

PK-103-011-(NTNT,PBPB,PZPZ,SCSC,SJSJ)



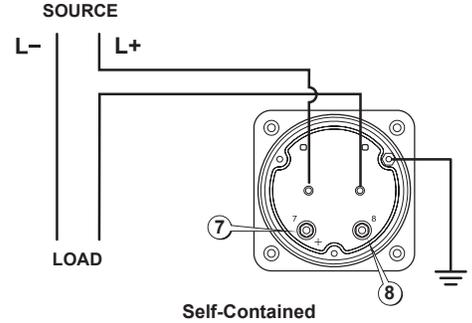
DC Ammeter

PK-103-121-(CAPK, CARL, CASC, CASM, CASS)



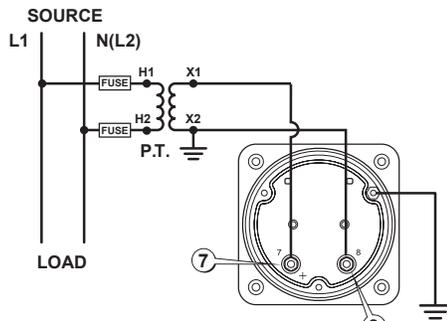
DC Ammeter

PK-103-111-(LSLS, NGNG)



AC Voltmeter

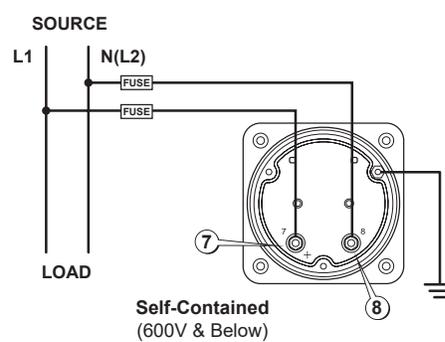
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AC Voltmeter With Potential Transformer

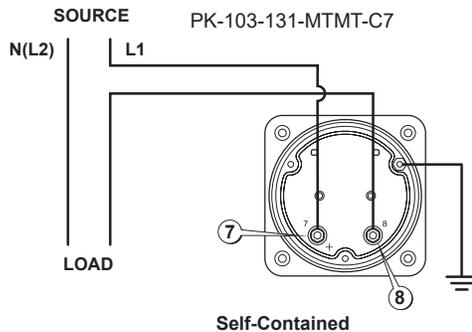
AC Voltmeter

PK-103-021-(PZPZ, RXXR, SJSJ)-C7



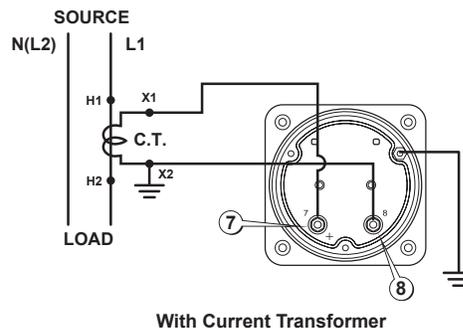
AC Ammeter

PK-103-131-MTMT-C7



AC Ammeter

PK-103-131-(LSNT, LSPK, LSSC, LSSN, LSTE, LSTV)-C7



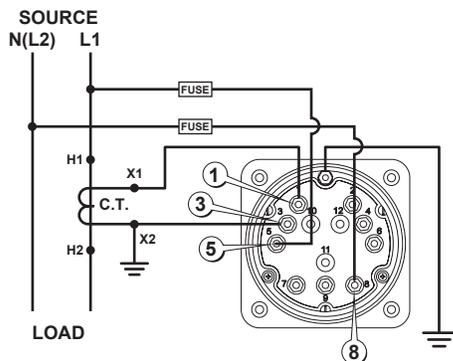
Sifam Tinsley MCS Series Analog Switchboard Meters



Wiring Diagrams (continued)

Single-phase Power-Factor Meter

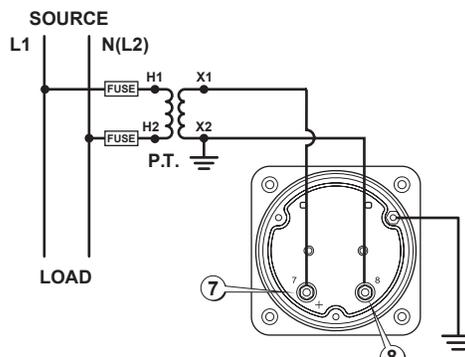
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With Current Transformer

Frequency Meter

PK-103-372-PNAN-AN



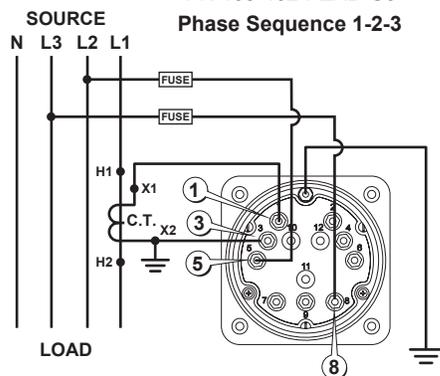
With Potential Transformer

Connection diagrams for power factor meters used with balanced 3-phase, 3-wire/4-wire circuits. A current transformer with a 5 A AC secondary should be used for the current measurement. If using a 3-phase potential transformer with a secondary voltage of 120 VAC, the power factor instrument should be rated for 240 VAC.

3-Phase Power Factor Meter Direct Connected

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Phase Sequence 1-2-3

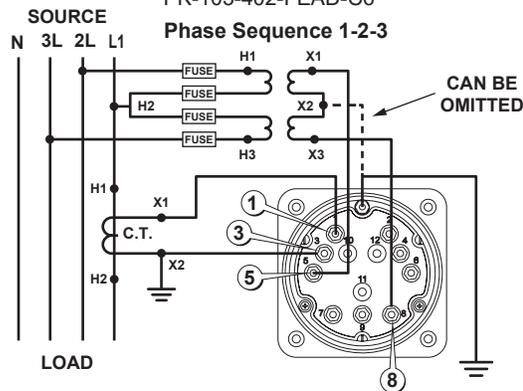


(Balanced System)

3-Phase Power Factor Meter Transformer Connected

PK-103-402-FEAD-C6

Phase Sequence 1-2-3



(Balanced System)