

Analog Meters

LS110 / LS80

Switchboard meter for AC and DC applications



- LS110 is 4.5" square switchboard case
- LS80 is 3.25" square switchboard case
- All AC moving coil rectifier ammeter and voltmeters are $\pm 1\%$ accurate
- DC moving coil ammeters and voltmeters are $\pm 1\%$ accurate
- All Frequency meters are $\pm 0.15\text{Hz}$ (50Hz & 60Hz) accurate
- All Power meters are $\pm 1\%$ accurate
- CT Burden on all Ammeters and Power Meters <0.5VA maximum
- Meets ANSI C39.1 Standard
- Custom artwork and customer logos available
- Colored dial segments available
- Panel gaskets available
- Traceable calibration
- UL Recognized (File E197020)

ELECTRICAL SPECIFICATIONS

MODEL TYPES AVAILABLE

AC Ammeters
AC Voltmeters
AC Frequency Meters
Kilowatt Meters (1Ph / 3 Ph)
Kilovar Meters (1 Ph / 3 Ph)
Power Factor (1 Ph / 3 Ph)
Synchroscope (1 Ph / 3 Ph)

DC Ammeters
DC Voltmeters
DC Indicators

NEW:

Phase Sequence Meter
LED Synchroscope

INPUTS

Voltage

120V,AC (L-L and L-N) and 240V,AC
AC Ammeters: 0-5A,AC
AC Voltmeters: 150V/300V/600V
Frequency: 45-65/45-55/55-65Hz
Optional: 400Hz
DC Ammeters: 0-50mV,DC
DC Voltmeters:
30V/50V/100V/150V/300V
DC Indicators: 0-1mA/4-20mA/0-**

ACCURACY

AC Volts / Amps $\pm 1\%$
Frequency $\pm 0.15\text{Hz}$ (50Hz & 60Hz)
DC Volts / Amps $\pm 1\%$
Power Meters $\pm 1\%$

OVERLOAD

AC Volts / Amps 50% Momentary / 20% Prolonged
DC Volts / Amps 50% Momentary / 20% Prolonged
Frequency 20% Maximum
Power Meters 20% Maximum

BURDEN

AC Ammeters CT: <0.5VA & VA: 1 VA
AC Voltmeter VA: 1 VA
Frequency (55/65Hz) VA: 1 VA
Wattmeter (1Ph, 110V) Voltage: 1.4V & Current: 0.5VA



For more information on this product, please contact:
PC&S, Inc. at +1 (800) 523-9194 or +1 (973) 448-9400
www.pc-s.com

LS110 STANDARD PART NUMBERS

AC VOLTMETERS (4.5")

Model	Input	Scale
LS110150V150V	0-150V,AC	0-150V,AC
LS110300V300V	0-300V,AC	0-300V,AC
LS110600V600V	0-600V,AC	0-600V,AC
LS110150V600V	0-150V,AC	0-600V,AC
LS110150V*V	0-150V,AC	0-*V,AC

Note: Also available in moving coil rectifier type. Please consult with factory.
* = advise desired PT ratio / end scale value.

DC VOLTMETERS (4.5")

Model	Input	Scale
LS110DC30V30V	0-30V,DC	0-30V,DC
LS110DC50V50V	0-50V,DC	0-50V,DC
LS110DC100V100V	0-100V,DC	0-100V,DC
LS110DC150V150V	0-150V,DC	0-150V,DC
LS110DC300V300V	0-300V,DC	0-300V,DC

AC AMMETERS (4.5")

Model	Input	Scale
LS1105A/10A**A	0-5A/10A,AC	0-**A,AC
LS1105A50A	0-5A,AC	0-50A,AC
LS1105A100A	0-5A,AC	0-100A,AC
LS1105A200A	0-5A,AC	0-200A,AC
LS1105A**A	0-5A,AC	0-*A,AC

** = advise desired CT ratio / end scale value.

DC AMMETERS (4.5")

Model	Input	Scale
LS110DC50MV50A	0-50mV,DC	0-50A,DC
LS110DC50MV100A	0-50mV,DC	0-100A,DC
LS110DC50MV***A	0-50mV,DC	0-***A,DC

*** = advise desired Shunt ratio / end scale value.

FREQUENCY METERS (4.5")

Model	Input	Scale
LS110HZ55651	120V,AC	55-65 Hz
LS110HZ45651	120V,AC	45-65 Hz
LS110HZ45551	120V,AC	45-55 Hz
LS110HZ55652	240V,AC	55-65 Hz
LS110HZ45652	240V,AC	45-65 Hz
LS110HZ45552	240V,AC	45-55 Hz

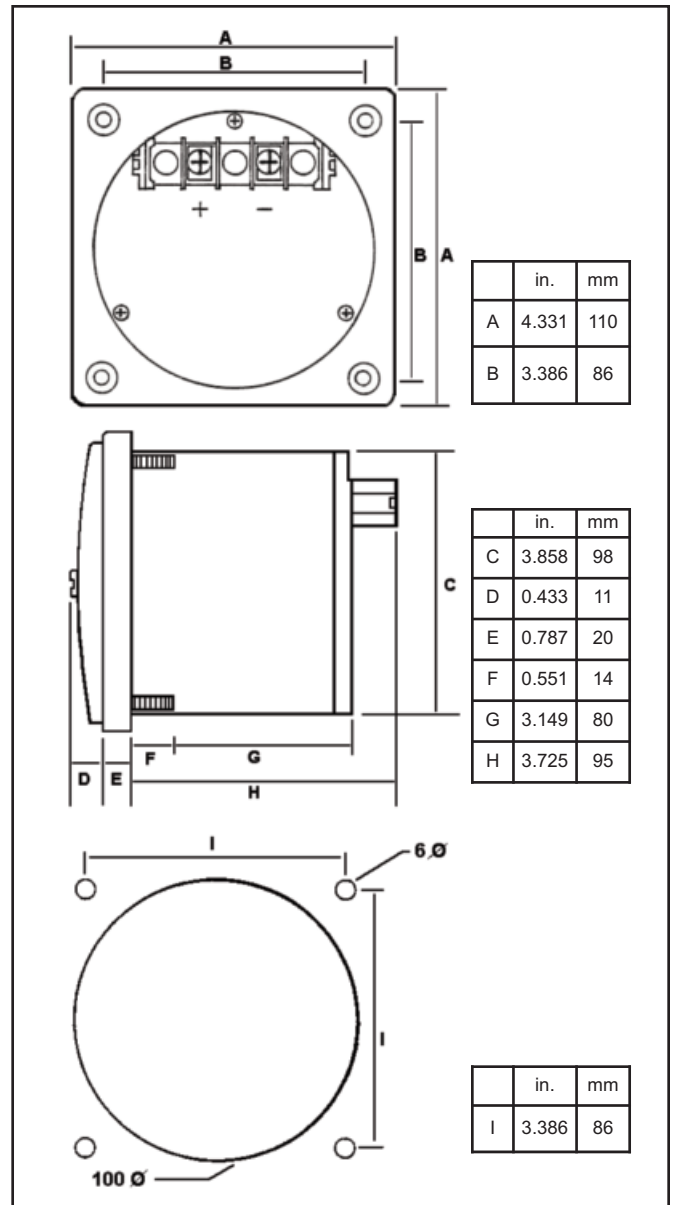
DC INDICATORS (4.5")

Model	Input	Scale
LS110DC1MA/****	0-1mA,DC	0-****
LS110DC420MA/****	4-20mA,DC	0-****
LS110DC****V/****	0-****V,DC	0-****

**** = advise desired end scale value and caption.

***** = advise desired end scale input voltage.

LS110 DIMENSIONS



KILOWATT METERS (4.5")

Model	System	Input	Scale	CT Ratio	PT Ratio
LS110KW12	1 Phase - 2 Wire (1EL)	120V - 5A,AC	Advise	Advise	Advise
LS110KW33	3 Phase - 3 Wire (2EL)	120V(L-L) - 5A,AC	Advise	Advise	Advise
LS110KW33480V5A	3 Phase - 3 Wire (2EL)	480V(L-L) - 5A,AC	Advise	Advise	Advise
LS110KW34	3 Phase - 4 Wire (2.5EL)	120V(L-N) - 5A,AC	Advise	Advise	Advise

KILOVAR METERS (4.5")

Model	System	Input	Scale	CT Ratio	PT Ratio
LS110KVAR12	1 Phase - 2 Wire (1EL)	120V - 5A,AC	Advise	Advise	Advise
LS110KVAR33	3 Phase - 3 Wire (2EL)	120V(L-L) - 5A,AC	Advise	Advise	Advise
LS110KVAR34	3 Phase - 4 Wire (2.5EL)	120V(L-N) - 5A,AC	Advise	Advise	Advise

POWER FACTOR METERS (4.5")

Model	System	Input	Scale
LS110PF12	1 Phase - 2 Wire	120V - 5A,AC	(0.5) lead - 1 - (0.5) lag
LS110PF33/4 (Bal Load)	3 Phase - 3/4 Wire	120V - 5A,AC	(0.5) lead - 1 - (0.5) lag

PHASE SEQUENCE / LOSS METERS (4.5")

Model	System	Input	Scale
LS110SEQ1	3 Phase	88 - 132V,AC	L1 - L2 - L3 and CORRECT - INCORRECT
LS110SEQ2	3 Phase	180 - 500V,AC	L1 - L2 - L3 and CORRECT - INCORRECT

SYNCHROSCOPE (4.5")

Model	System	Input	Scale
LS110SYNC12A	1 Phase	120V,AC - 60Hz	Slow - Fast
LS110SYNC12B	3 Phase	120V,AC - 50Hz	Slow - Fast

LED SYNCHROSCOPE (4.5")

Model	System	Input	Scale
LS110SYNC1	1 Phase	120V,AC - 50/60Hz	Slow - Fast and BUS - GEN - SYNC
LS110SYNC2	1 Phase	240V,AC - 50/60Hz	Slow - Fast and BUS - GEN - SYNC

LS80 STANDARD PART NUMBERS

MINI AC VOLTMETERS (3.25")

Model	Input	Scale
LS80150V150V	0-150V,AC	0-150V,AC
LS80300V300V	0-300V,AC	0-300V,AC
LS80600V600V	0-600V,AC	0-600V,AC
LS80150V600V	0-150V,AC	0-600V,AC
LS80150V*V	0-150V,AC	0-*V,AC

Note: Also available in moving coil rectifier type. Please consult with factory.
* = advise desired PT ratio / end scale value.

MINI DC VOLTMETERS (3.25")

Model	Input	Scale
LS80DC30V30V	0-30V,DC	0-30V,DC
LS80DC50V50V	0-50V,DC	0-50V,DC
LS80DC100V100V	0-100V,DC	0-100V,DC
LS80DC150V150V	0-150V,DC	0-150V,DC
LS80DC300V300V	0-300V,DC	0-300V,DC

MINI AC AMMETERS (3.25")

Model	Input	Scale
LS805A50A	0-5A,AC	0-50A,AC
LS805A100A	0-5A,AC	0-100A,AC
LS805A200A	0-5A,AC	0-200A,AC
LS805A**A	0-5A,AC	0-*A,AC

** = advise desired CT ratio / end scale value.

MINI DC AMMETERS (3.25")

Model	Input	Scale
LS80DC50MV50A	0-50mV,DC	0-50A,DC
LS80DC50MV100A	0-50mV,DC	0-100A,DC
LS80DC50MV***A	0-50mV,DC	0-***A,DC

*** = advise desired Shunt ratio / end scale value.

MINI FREQUENCY METERS (3.25")

Model	Input	Scale
LS80HZ55651	120V,AC	55-65 Hz
LS80HZ45651	120V,AC	45-65 Hz
LS80HZ45551	120V,AC	45-55 Hz
LS80HZ55652	240V,AC	55-65 Hz
LS80HZ45652	240V,AC	45-65 Hz
LS80HZ45552	240V,AC	45-55 Hz

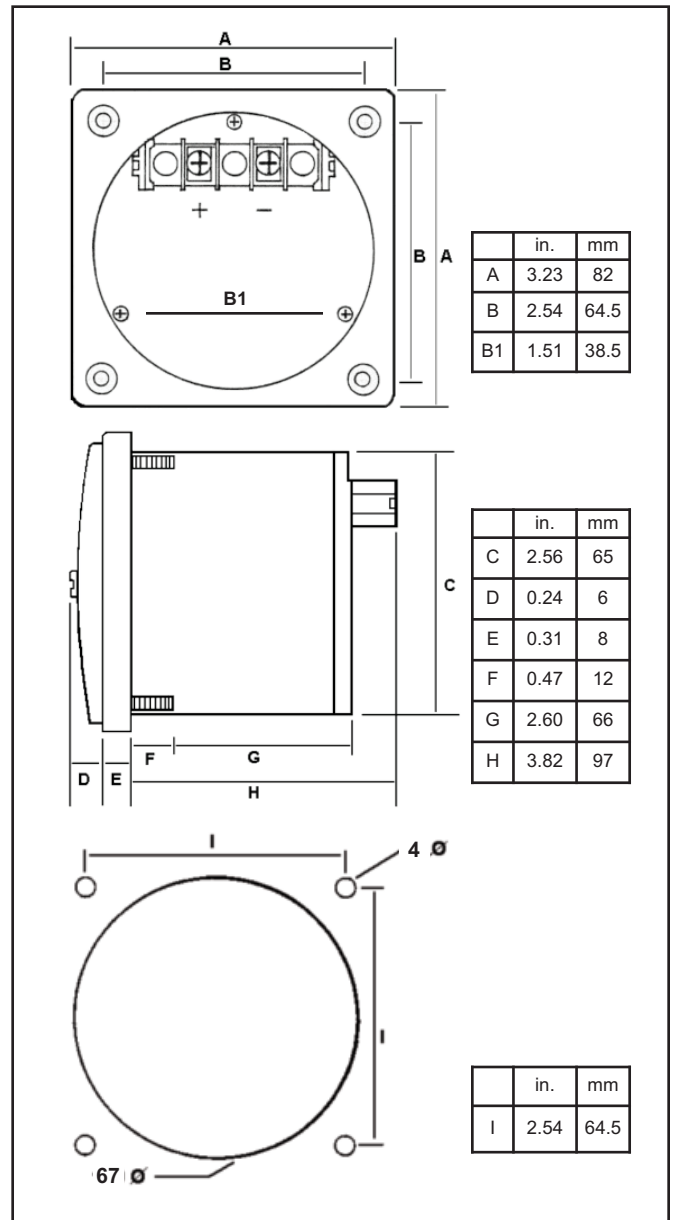
MINI DC INDICATORS (3.25")

Model	Input	Scale
LS80DC1MA/****	0-1mA,DC	0-****
LS80DC420MA/****	4-20mA,DC	0-****
LS80DC****V/****	0-****V,DC	0-****

**** = advise desired end scale value and caption.

***** = advise desired end scale input voltage.

LS80 DIMENSIONS



MINI KILOWATT METERS (4.5")

Model	System	Input	Scale	CT Ratio	PT Ratio
LS80KW12	1 Phase - 2 Wire (1EL)	120V - 5A,AC	Advise	Advise	Advise
LS80KW33	3 Phase - 3 Wire (2EL)	120V(L-L) - 5A,AC	Advise	Advise	Advise
LS80KW34	3 Phase - 4 Wire (2.5EL)	120V(L-N) - 5A,AC	Advise	Advise	Advise

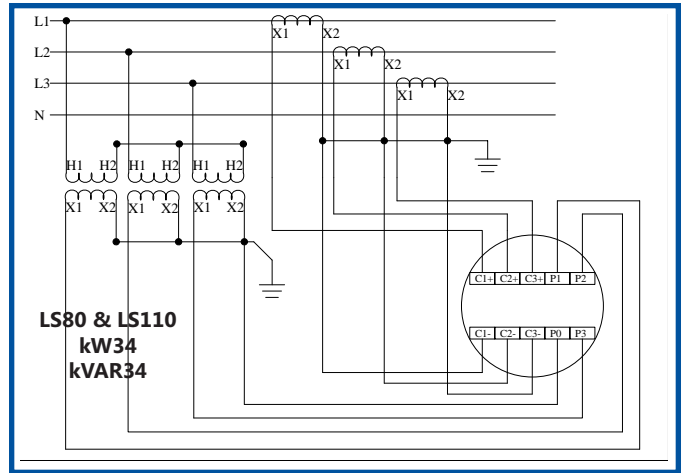
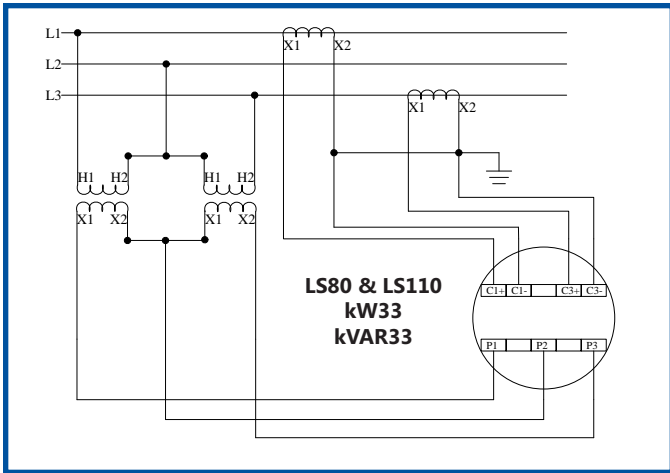
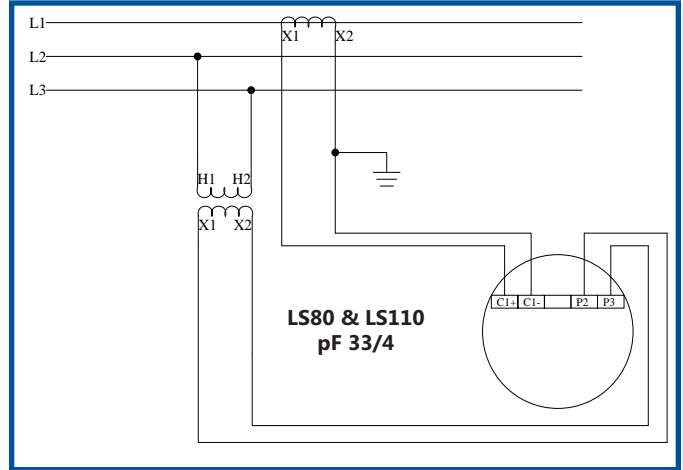
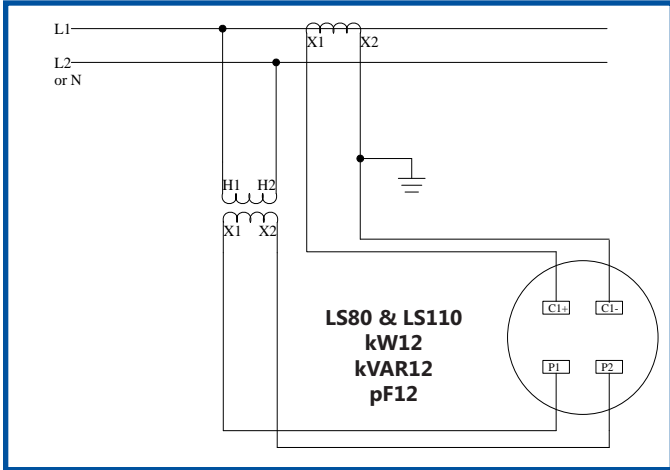
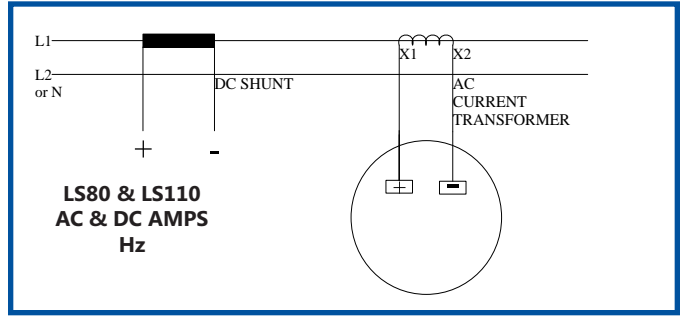
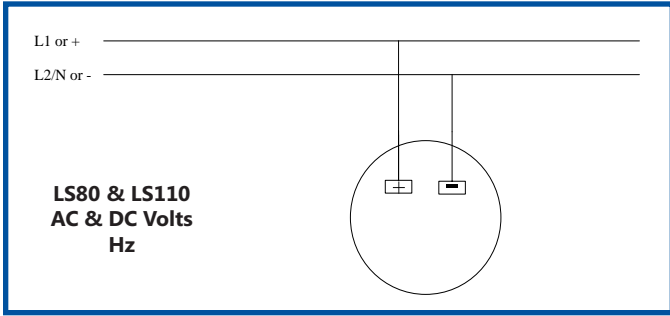
MINI KILOVAR METERS (4.5")

Model	System	Input	Scale	CT Ratio	PT Ratio
LS80KVAR12	1 Phase - 2 Wire (1EL)	120V - 5A,AC	Advise	Advise	Advise
LS80KVAR33	3 Phase - 3 Wire (2EL)	120V(L-L) - 5A,AC	Advise	Advise	Advise
LS80KVAR34	3 Phase - 4 Wire (2.5EL)	120V(L-N) - 5A,AC	Advise	Advise	Advise

MINI POWER FACTOR METERS (4.5")

Model	System	Input	Scale
LS80PF12	1 Phase - 2 Wire	120V - 5A,AC	(0.5) lead - 1 - (0.5) lag
LS80PF33/4 (Bal Load)	3 Phase - 3/4 Wire	120V - 5A,AC	(0.5) lead - 1 - (0.5) lag

LS110 / LS80 WIRING DIAGRAMS



www.pc-s.com

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