

Model L53U Multi Power Transducer

- Single-phase/2-wire and 3-wire, three-phase/3-wire and 4-wire systems
- Fully configurable measured variables and parameters using the PC Configurator Software
- Modbus + Di/Do option
- 4 x analog outputs option
- DIN rail mounted



M-System model L53U converts a wide variety of variables in AC heavy-current power systems to transmit via Modbus for centralized logging purposes or to provide analog outputs for local display/trend/logging.

One model can be used for single-phase/2-wire and 3-wire, three-phase/3-wire and 4-wire systems. Users can freely choose and program major variables such like AC voltage/current, active/reactive power, power factor, AC frequency deviation, apparent power, active/reactive energy and up-to-the-31st harmonic distortions. Measured variables also include the maximum/minimum/average values, in total of 500 types.

All measured variables can be transmitted to the host PC via RS-485/Modbus RTU. Conversion factors, system configuration, interval times are programmable using the PC Configurator Software locally or remotely. Measured values, counter values, setting data are stored in the non-volatile memory at the power off.

An open collector output can be used for energy count pulse or limit alarm trip. Pulse rate for energy count can be specified. The contact output can be simulated for testing the connected device.

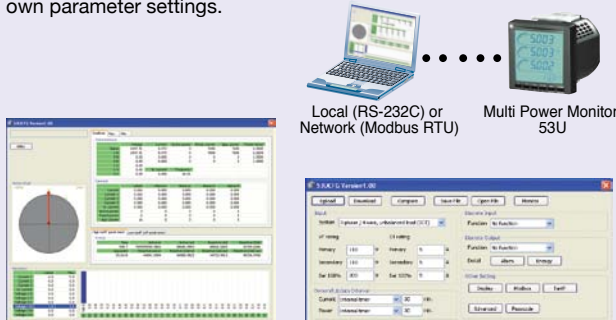
External open collector input is typically used to reset energy count memory. The signal can be also monitored at the host system via Modbus, so that the host can start/stop monitoring according to ON/OFF status of a load (e.g. motor running or not).

Four analog output option (4-20 mA or 1-5 V) is also available instead of Modbus and Di/Do interface. Users can choose and program four among major variables, e.g. 1 VT plus 3 CT, to be converted into analog outputs, thus eliminating needs for four independent single function transducers.

The L53U is a DIN rail mounted version of the model 53U Multi Power Monitor, without LCD display. Both models are based on the same data setting and monitoring strategies thus easy to be mixed in single monitoring network, depending upon need for the display.

User-Friendly PC Software Setting

Save yourself much time using the free PC Configurator software to create, save and download your own parameter settings.

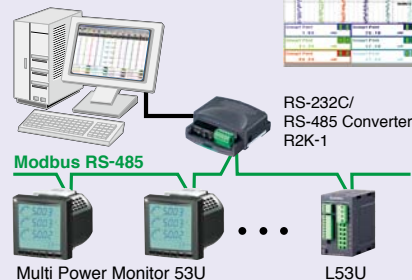


Monitoring window for real-time, instantaneous values, max/min values, energy and harmonic distortions

Configuration window for quick and easy viewing/setting of basic parameters

Monitoring and Storing Measured/Computed Values on the PC

The PC Recorder Light MSR128LU dedicated for the 53U / L53U is free for downloading from our web site.



SPECIFICATIONS

■ GENERAL SPECIFICATIONS

Connection

Voltage input, output, power:

Connector type terminal block

Current input: Screw terminal block

Configuration:

Single phase/2-wire and 3-wire,
3-phase/3-wire balanced/unbalanced load,
3-phase/4-wire balanced/unbalanced load

Mode selector:

Operating or Configuration mode

Isolation:

Voltage input to current input to discrete input to discrete output to network interface or configurator jack or analog output to power

Measured variables

Voltage:

1 - N, 2 - N, 3 - N, 1 - 2, 2 - 3, 3 - 1

Current: 1, 2, 3, N

Active / reactive / apparent power:

1, 2, 3, Σ

Power factor: 1, 2, 3, Σ

Frequency

Voltage phase angle: 1 - 2, 2 - 3, 3 - 1

Active energy:

Incoming/outgoing/high tariff (peak)/low tariff (off-peak)

Reactive energy:

Incoming/outgoing/lag/lead/high tariff (peak)/low tariff (off-peak)

Apparent energy

Active/reactive/apparent average power (demand)

Average current: 1, 2, 3, N

Harmonic contents: Σ , 2nd to 31st

Count time: High tariff/low tariff

Max. and min. values

Demand history: 1 to 4

■ INPUT

Frequency: 50/60 Hz (45-65 Hz)

• Voltage Input

Rated voltage

Line-to-line (delta voltage): 480 V

Line-neutral (phase voltage): 277 V

• Current Input

Rated current: 1 A or 5 A

• Discrete Input:

24 Vdc or 110 Vdc (input resistance 6 k Ω)

The status can be monitored on the Modbus; usable to reset energy count or to update average (demand) value.

■ OUTPUT

• Network Interface

Transmission:

Half-duplex, asynchronous, no procedure

Interface: Conforms to EIA RS-485

Max. transmission distance: 500 meters

Baud rate: 1.2-38.4 kbps

Max. number of nodes: 31 (except the master)

Protocol: Modbus RTU

• Analog Output

Measurands converted into analog output:

Voltage, Current, Active / reactive / apparent power, Power factor, Frequency, Harmonic contents

DC current:

4-20 mAdc; load resistance $\leq 270 \Omega$

DC voltage:

1-5 Vdc; load resistance $\geq 5000 \Omega$

• Open Collector Output

Programmable for either alarm or energy count.

Continuous rated load: 130 Vdc @30 mA

Saturation voltage: 1.5 Vdc

Measurands applicable to alarm:

Voltage, current, average current (demand), neutral current, frequency, power, average power (demand)
(ON delay, deadband and other parameters are selectable)

Measurands applicable to count:

Energy; pulse rate selectable within 0.1-10 000.0 kWh/p, kvarh/p, kVAh/p

■ INSTALLATION

Power input

100-240 Vac rating:

Operational range 85-264 V, 50/60 Hz; <8 VA

110-240 Vdc rating:

Operational range 99-264 V, ripple 10 %p-p max., <3 W

Operating temperature:

-10 to +55°C (14 to 131°F)

Operating humidity:

30 to 90 %RH (non-condensing)

Mounting: DIN rail

Weight: 320 g (0.71 lbs)

■ PERFORMANCE

Accuracy

(at 23°C $\pm 10^\circ\text{C}$ or 73.4°F $\pm 18^\circ\text{F}$, 45-65 Hz)

Voltage: $\pm 0.3\%$ ($\pm 0.2\%$ for Option /H)*

Current: $\pm 0.3\%$ ($\pm 0.2\%$ for Option /H)*

Power: $\pm 0.5\%$ *

Power factor: $\pm 0.5\%$

Frequency: $\pm 0.1\%$ *

Energy: $\pm 1\%$ ($\pm 0.5\%$ for Option /H)

Harmonic contents: $\pm 1\%$ *

Analog output:

Accuracy of assigned measurand or $\pm 0.2\%$, whichever is greater.

*In percentage of the spans: 480 V for voltage, 1 A or 5 A for current, 4155 W (5 A) or 831 W (1 A) for active power. The described accuracy levels are ensured at the input 1 % or more for phase 2 current with 3-phase/3-wire unbalanced load, for neutral current with 3-phase/4-wire unbalanced load, and neutral current with 1-phase/3-wire.

Response time:

≤ 2 sec. (0-99%), ≤ 3 sec. for frequency and harmonic contents

Sampling time:

Harmonic contents and frequency:

≤ 1.1 sec.

Other: ≤ 600 msec.

Insulation resistance:

$\geq 100 \text{ M}\Omega$ with 500 Vdc

(voltage input to current input to discrete input to discrete output to network interface or configurator jack or analog output to power)

Dielectric strength:

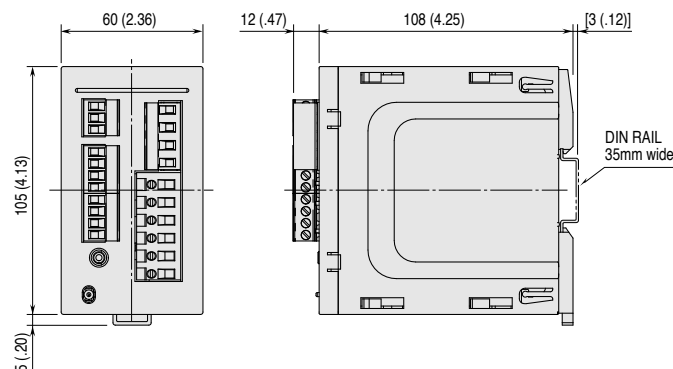
4000 Vac @1 minute

(voltage input or current input or discrete input or discrete output or network interface or configurator jack or analog output to power)

2500 Vac @1 minute

(voltage input to current input to discrete input to discrete output to network interface or configurator jack or analog output)

EXTERNAL DIMENSIONS mm (inch)



Your local representative: