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.
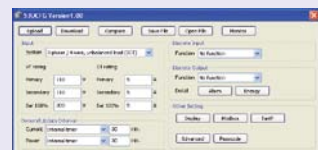
User-Friendly PC Software Setting

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

Local (RS-232C) or Network (Modbus RTU)

Multi Power Monitor 53U
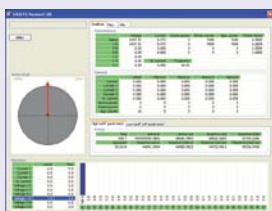
Monitoring window for real-time, instantaneous values, max/min values, energy and harmonic distortions

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.

RS-232C/ RS-485 Converter R2K-1

Modbus RS-485

Multi Power Monitor 53U   L53U
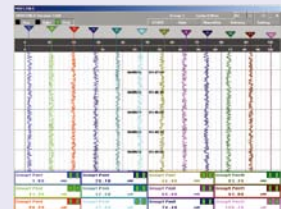
■ SPECIFICATIONS

■ 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, ∑
Power factor: 1, 2, 3, ∑
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: ∑, 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 kΩ)
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 ≤270 Ω
DC voltage:
1-5 Vdc; load resistance ≥5000 Ω
• 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 ±10°C or 73.4°F ±18°F, 45–65 Hz)
Voltage: ±0.3% (±0.2% for Option /H)*
Current: ±0.3% (±0.2% for Option /H)*
Power: ±0.5%*
Power factor: ±0.5%
Frequency: ±0.1%*
Energy: ±1% (±0.5% for Option /H)
Harmonic contents: ±1%*
Analog output:
Accuracy of assigned measurand or ±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:
≥100 MΩ 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)
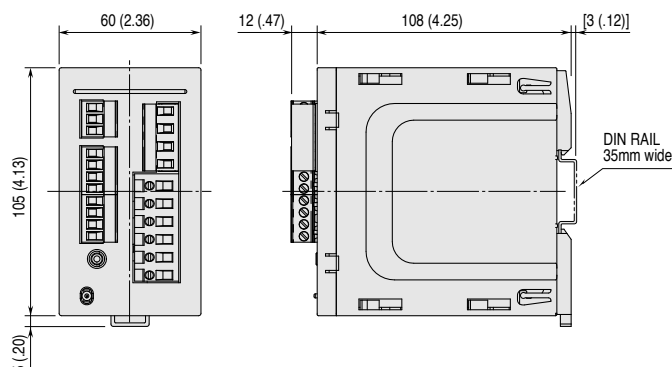**Dielectric strength:**
4000 Vac @1 minute
(voltage input or current input or discrete input or discrete output or network interface or configurator jack or analog output to power)
2500 Vac @1 minute
(voltage input to current input to discrete input to discrete output to network interface or configurator jack or analog output)

■ EXTERNAL DIMENSIONS mm (inch)

60 (2.36) 12 (.47) 108 (4.25) [3 (.12)]
105 (4.13)
5 (.20)
DIN RAIL 35mm wide

Your local representative: