

Model 53U Multi Power Monitor

- Single-phase/2-wire and 3-wire, three-phase/3-wire and 4-wire systems
- Three line measured value/bargraph indicators plus energy count/info display
- Modbus, Ao, Di/Do options
- Up to 31st harmonic distortion measurement
- Software lock
- IP 50 front panel



M-System model 53U is a 96-mm-square Multi LCD Power Monitor mounted on a panel surface.

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. Up to 1800 patterns of display combinations are available.

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.

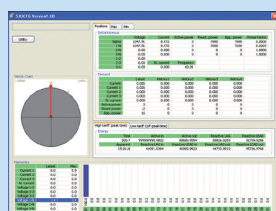
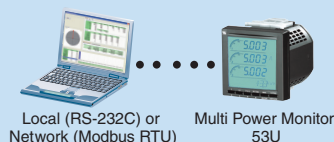
External open collector input is typically used to reset energy count memory. The signal can be also monitored at the host system via Modbus, so that the host can start/stop monitoring according to ON/OFF status of a load (e.g. motor running or not).

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.

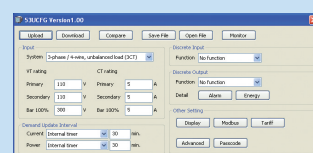
For M-System product information and downloadable data sheets, visit M-System web site at: www.m-system.co.jp.

User-Friendly PC Software Setting

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



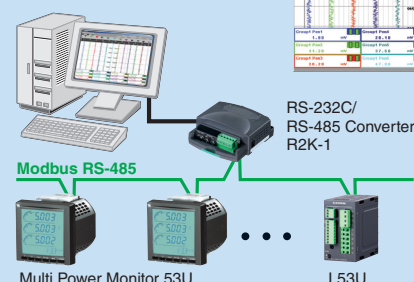
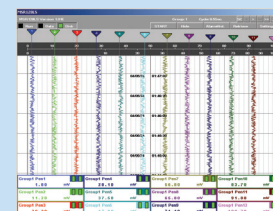
Monitoring window for real-time, instantaneous values, max/min values, energy and harmonic distortions



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

Monitoring and Storing Measured/Computed Values on the PC

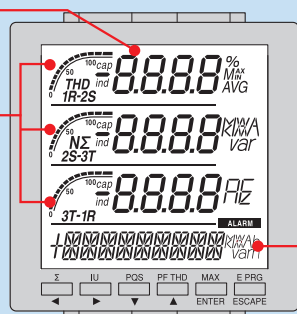
The PC Recorder Light MSR128LU dedicated for the 53U / L53U is free for downloading from our web site.



FRONT DISPLAY FUNCTIONS

500 types of measured variables; 1800 combinations

Bargraphs
Each measured variable is represented in percentage.



Information display

Shows the energy count in normal conditions.
Variable type in alarm condition is displayed when an alarm is triggered.
Parameter type is displayed in the setting mode.

Normal mode : Energy count display

➔ +123456789 kVh

Alarm mode : Alarm trip display

➔ 11-3 Display flashes while the alarm is on.

Configuration mode : Parameter display

➔ CT-PRI

SPECIFICATIONS

MEASURED VARIABLES

Voltage: 1-N, 2-N, 3-N, 1-2, 2-3, 3-1
Current: 1, 2, 3, N
Average current: 1, 2, 3
Active/reactive/apparent power: 1, 2, 3, Σ
Power factor: 1, 2, 3, Σ
Frequency
Phase angle between voltages: 1-2, 2-3, 3-1
Active energy incoming/outgoing: Σ
Reactive energy inductive/capacitive: Σ
Apparent energy: Σ
Power intervals (demand) and other demands
Harmonic contents: 2nd to 31st
Max. and min. values

INPUT

Frequency: 50/60 Hz (45-65 Hz)
Voltage Input
Line-to-line (delta voltage): 480 V
Line-neutral (phase voltage): 277 V
Current Input: 1 A or 5 A
Contact Input: 24 Vdc or 110 Vdc
The status can be monitored on the Modbus; usable to reset energy count or to update average (demand) value.

OUTPUT

- Modbus RTU
- Communication:
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 slave nodes: 31
- DC Current: 4-20 mAdc
Load resistance: ≤270 Ω
- DC Voltage: 1-5 Vdc
Load resistance: ≥5000 Ω
- Open Collector: 130 Vdc @30 mA
Programmable for either alarm or energy count.

INSTALLATION

Auxiliary power input:
100-240 Vac (operational range 85-264 V)
47-66 Hz, <8 VA

Operating temp.: -10 to +55°C (14 to 131°F)
Storage temp.: -20 to +80°C (-4 to +176°F)
Operating humidity:
90% RH max. (non-condensing)
Mounting: 1/4 DIN panel flush mount
Degree of protection: IP 50 (front)
IP 30 (terminal block and housing)
Weight: 300 g (0.66 lb)

PERFORMANCE

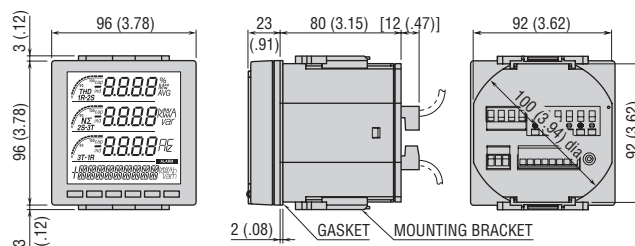
Accuracy (in % of span)
Voltage/current: ±0.3% (Option /H: ±0.2 %)
Power: ±0.5%
Power factor: ±0.5%
Frequency: ±0.1%
Energy: ±1% (Option /H: ±0.5%)
Harmonic contents: ±1%
Analog output: Accuracy of assigned measur-
and or ±0.2 %, whichever is greater.
Response time: ≤2 sec. (0-99 %)
≤3 sec. for frequency/harmonic contents
Sampling time: ≤600 msec.
≤1.1 sec. for frequency/harmonic contents
Insulation resistance: ≥100 MΩ with 500 Vdc

Dielectric strength: 4000 Vac @1 minute
(voltage input or current input or contact in-
put or contact output or network interface or
configurator jack or analog output to power)
2500 Vac @1 minute (voltage input to current
input to contact input to contact output to
network interface or configurator jack or
analog output)
2000 Vac @1 minute (circuits to housing)

STANDARDS & APPROVALS

CE conformity:
EMC Directive (2004/108/EC)
EMI EN 61000-6-4: 2007
EMS EN 61000-6-2: 2005
Low Voltage Directive (2006/95/EC)
EN 61010-1: 2001
UL approval:
UL/C-UL general safety requirements
UL 61010-1: 2005
CAN/CSA-C22.2 No.61010-1: 2004
IEC standard: (applicable with Option /H)
IEC 62053-22: 2003 class 0.5s
IEC 62053-23: 2003 class 2

EXTERNAL DIMENSIONS unit: mm (inch)



Specifications are subject to change without notice.

Your local representative: