

# GridKey MCU318 Datasheet

Unlocking the smartgrid - A collaboration between Lucy Electric and Sentec

## Why Choose the GridKey MCU318?

GridKey is a custom designed continuous monitoring solution for low voltage (LV) networks. It consists of a number of current sensors on each feeder together with voltage taps, connected to a Metrology and Communications Unit (MCU) which processes the sensor data and generates and logs substation loading and condition parameters.

This information is relayed to a remote data centre where the data is securely stored. Substation performance and feeder cable condition can be analysed, enabling access graphically via our customer web portal.

The GridKey MCU318 LV monitoring system is designed for purpose, offering a flexible and highly configurable information system with the following benefits:

- Safe and easy retrofit solution for installations indoors and out – lightweight and compact with no interruption of customer supply
- Built to be weather resistant– IP54 rated; meeting relevant electrical standards for external and internal substation use
- When used with SlimSensor modified Rogowski sensors the system provides class 2 metering accuracy – on three phases of up to 6 feeders
- Comprehensive reporting of substation feeder and calculated busbar parameters, giving better information to drive evidence based decision making for grid management
- Compact design allows the system to be fitted internally within LV cabinets reducing the risk of theft or vandalism. A built-in GPRS modem and antenna provides reliable communications
- A secure Wi-Fi connection to the unit is provided to allow configuration and testing whilst installing
- For some countries GridKey are able to supply a cost effective roaming SIM card, however any SIM card can be fitted during manufacture for the customer's chosen mobile network(s). These can be soldered directly onto the PCB to improve security and reliability.

The customer can choose to configure and generate alert messages that would be sent via the data network system for multiple grid measurement states, for example to provide indications and warnings of any over voltage or power phase imbalance conditions.

The information and alerts provided enable network managers to make evidence based decisions and plan effectively for future preventive maintenance and capital expenditure.



## The Metrology and Communications Unit

The MCU318 continuously and accurately measures and calculates a wide range of grid condition data including:

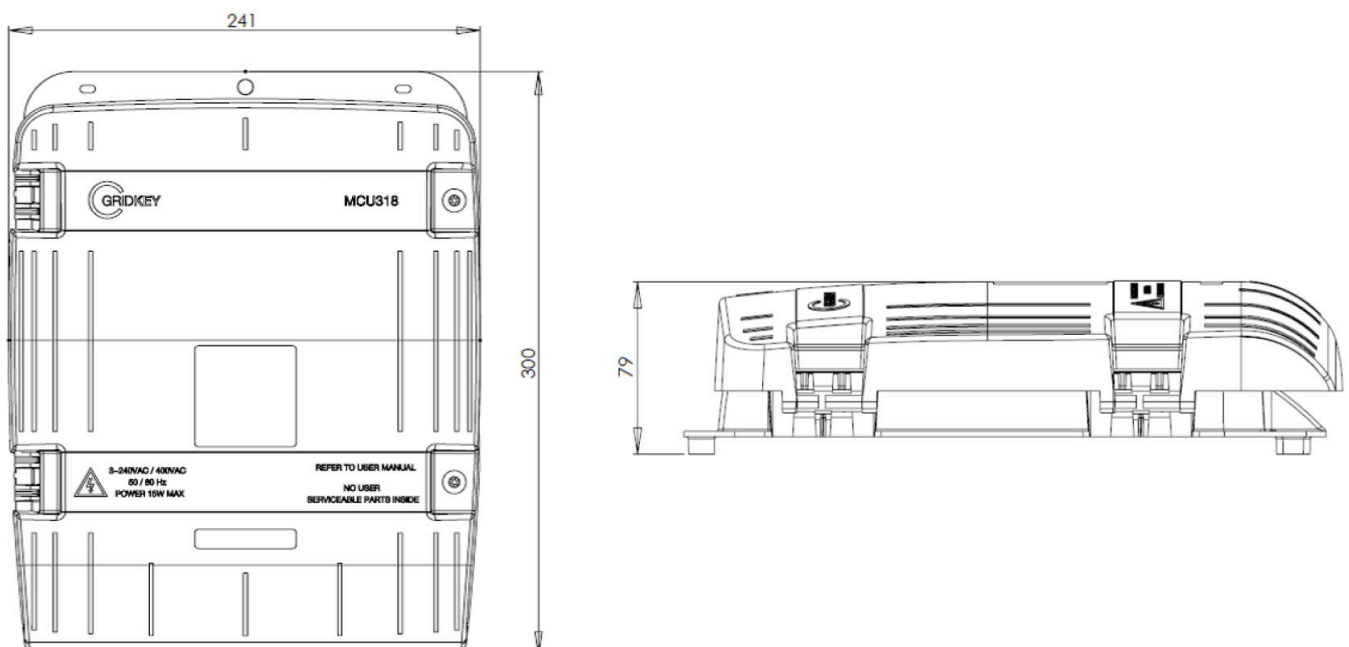
- ✓ Busbar min / max / averaged voltages
- ✓ Minimum, maximum and rms current and phase angle for individual phases per feeder
- ✓ Active and reactive powers per feeder
- ✓ Stores calculated values and alarms for up to 180 days.

The MCU318 is fully configurable at installation time via a Wi-Fi link with a laptop. Parameters that can be set include:

- ✓ Substation identification and location information
- ✓ The feeder connections used
- ✓ The reporting intervals and alert message settings
- ✓ Measurement parameters.

At any point in operation, the data reporting and alert messaging settings for each MCU can be individually re-configured remotely via its network interface. The operator can select the MCU measurement reporting interval from 1 minute, 10 minute or 30 minute periods as needed.

## Dimensions (mm)



## Metrology

Measurement Standards	Class 2 in accordance with EN 62053-21
Electrical safety standards	EN 61010-1: 2010, with corrigendum May 2011 EN 61010-2-030: 2010
Over voltage	300 V rms Category IV. pollution degree 3
Current measurement range	Accurate up to 720 A AC per feeder phase No damage at any over-current condition
Operating voltage and measurement range	230V AC + 15%. -20% rms Phase to Neutral
Line frequency	50Hz (nominal)

## Protection, Environmental & Compatibility

IP Rating	IP54
Electromagnetic compatibility	EN 61000-6-2 immunity EN 61000-6-4 Emissions
Surge protection	IEC61000 6kV
Operating temperature range	- 20°C to 55°C (<93% RH, non-condensing)
Storage temperature range	- 25°C to 70°C
Altitude	Up to 2000m

## Mechanical

Size (h x w x d)	300mm x 245mm x 80mm
Weight	1.35 kg
IP category	IP54 IEC 60529
Impact	EN 62262 IK06
Power	Power from single phase only, 6W typical, 11W maximum (GPRS enabled)
Communications interfaces	GSM/GPRS quad band 850/900/1800/1900 MHz Any network SIM can be provided by customer

**GridKey is a collaboration between Sentec, the smart grid and metering specialists and Lucy Electric, experts in the design, development, manufacture and integration of a wide range of sensor and data exploitation systems.**

**For more information about GridKey please contact us:**

Website: [www.gridkey.co.uk](http://www.gridkey.co.uk)  
Email: [info@gridkey.co.uk](mailto:info@gridkey.co.uk)  
Phone: +44 (0)1268 850000

For more information contact your Hiko representative  
Hiko Power Engineering reserve the right to amend product details without notice.

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