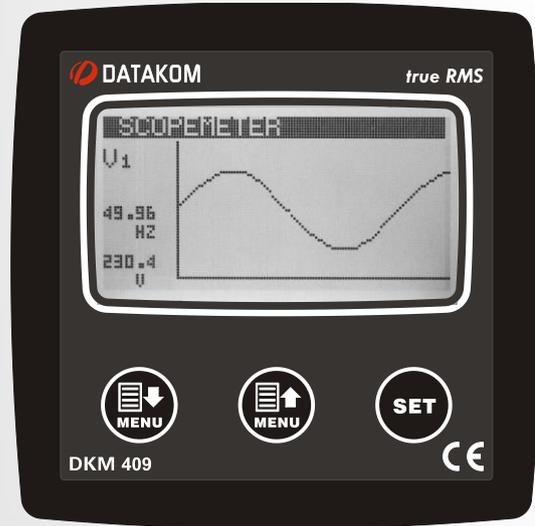


DKM-409-PRO

NETWORK ANALYSER

- **1MB RECORD MEMORY**
- **HARMONIC ANALYSIS**
- **SCOPEMETER**
- **4-20mA ANALOG OUTPUTS**
- **4 DIGITAL INPUTS**
- **2 RELAY OUTPUTS**



INTRODUCTION

The DKM-409 is a precision instrument designed for displaying, logging and remote monitoring of various AC parameters in a 3-phase network.

Thanks to its isolated RS-485 Modbus RTU comport, the device is free from ground potential difference issues and data are safely transferred to automation and monitoring systems.

The power supply of the unit is isolated. The supply range is 85-300V-AC and 110V-DC allowing universal use in AC and DC supplies. With 4 CT inputs, the device measures directly the neutral (or ground) current.

The device has 1MB internal memory for the record of all electrical parameters with required frequency. Records are read through Modbus.

The device supports micro-SD flash memory cards with unlimited data storage capacity for long term data recording.

The unit has 2 x 4-20mA analog outputs. Any measurement can be output as analog value.

The graphic screen allows display of waveforms and harmonic analysis graphs.

The user configurable screen where any measured parameter set can be displayed, transforms the unit to a custom designed measurement panel.

MEASUREMENTS

Ph-N and Ph-Ph volts: V1-V2-V3-U12-U23-U31
Phase and neutral currents: I1-I2-I3-In
Phase active power: P1-P2-P3
Phase and total, active/reactive/apparent powers: P1-P2-P3-Q1-Q2-Q3-S1-S2-S3- Σ P- Σ Q- Σ S
Ph and total power factor: cos1-cos2-cos3- Σ cos
Active and reactive counters: Pc1-Pc2-Qc1-Qc2
User counters: USR1-USR2-USR3-USR4
2...31 Harmonics of any voltage or current

FEATURES

True RMS measurements

0.5% measurement accuracy

Internal 1MB record memory

Unlimited capacity micro-SD card support

FAT32 file system support on micro-SD card

Long term data recording in Excel-CSV format.

Harmonic distortion display (31 harmonics)

Oscilloscope, waveform display

Max demand display

User configurable display screen

Fully isolated RS-485 serial port

MODBUS-RTU communication

2 configurable relay outputs

Energy pulse output capability

4 optically isolated, configurable digital inputs

2 isolated, programmable 4-20mA analog out

Switched dual active-reactive power counters

Independent mains/generator energy metering

Configurable user counters

Voltage transformer ratio for MV applications

Password protected front panel programming

High visibility, 128x64 pixels graphic LCD

Reduced panel depth

Wide power supply range

Suitable for 110V-DC supply

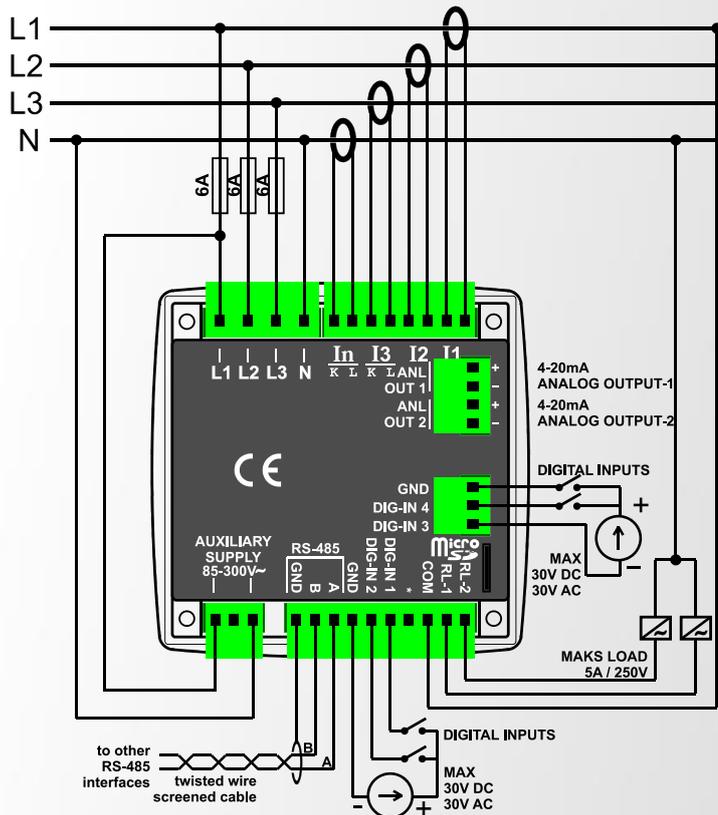
Wide operating temperature range

Sealed front panel (IP54)

Plug-in connection system



CONNECTION DIAGRAM



TECHNICAL SPECIFICATIONS

Power Supply Input:

85 - 300VAC, 50 - 60Hz nominal ($\pm 10\%$)
110VDC

Measurement Input Range:

Voltage: 10 - 300 V AC (L-N)
20 - 520 V AC (L-L)
Current: 0.2 - 5.5 A AC
Frequency: 30 - 100 Hz

Accuracy:

Voltage: 0.5%+1 digit
Current: 0.5%+1 digit
Frequency: 0.5%+1 digit
Power (kW,kVA): 1.0%+2 digit
Power factor: 0.5%+1 digit

Analog outputs: Isolated, 4-20mA

Precision: 12bit
Isolation: 1000V AC, 1 minute

Measurement Range:

CT range: 5/5A to 5000/5A
VT range: 1.0/1 to 5000.0/1
kW range: 1.0 kW to 50.0 MW

Power Consumption: < 4 VA

Voltage burden: < 0.1VA per phase

Current burden: < 1VA per phase

Relay Outputs: 5A @ 250V AC

Digital Inputs:

Active level: 5 to 30V-DC or AC
Min pulse: 250ms.
Isolation: 1000V AC, 1 minute

Serial Port:

Signal level: RS-485
Protocol: Modbus RTU
Data Rate: adj. 2400-115200 bauds
Isolation: 500V AC, 1 minute

Operating Temperature:

-20°C to +70°C (-4 to +158 °F).

Maximum humidity: 95% non-condensing.

Degree of Protection: IP 54 (Front Panel)
IP 30 (Back panel)

Enclosure: Non-flammable, ROHS compliant

Installation: Flush mounting with rear brackets

Dimensions: 102x102x53mm (WxHxD)

Panel Cutout: 92x92mm

Weight: 200 gr

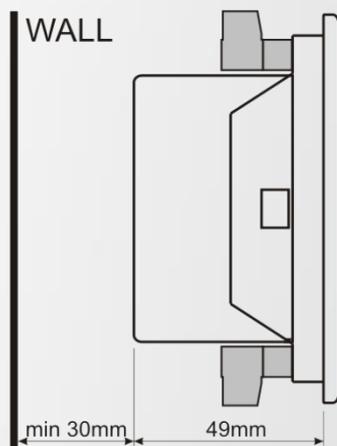
EU Directives:

2006/95/EC (LVD)
2004/108/EC (EMC)

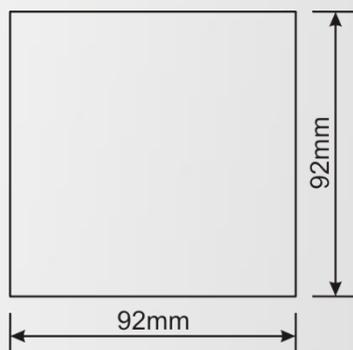
Norms of reference:

EN 61010 (safety)
EN 61326 (EMC)

MOUNTING TOLERANCES



PANEL CUTOUT DIMENSIONS



PACKAGING INFORMATION

Pieces per Package: 12 pieces

Package Size: 280 x 170 x 215mm

Package Weight: 2.6 kg