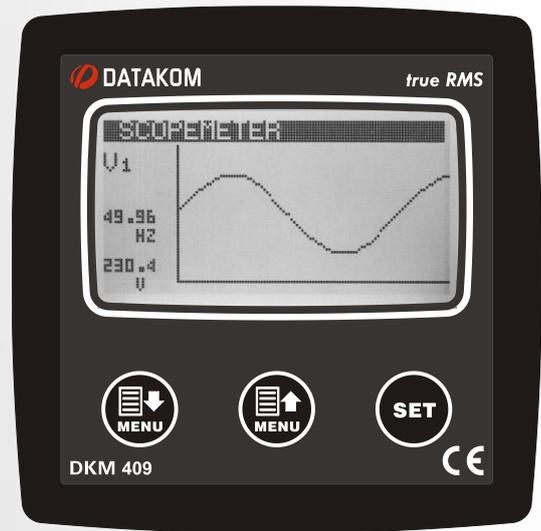


DKM-409-PRO-AT

NETWORK ANALYSER

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



INTRODUCTION

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

The power supply of the unit is isolated. The supply range is 100-265V-AC and 88-400V-DC allowing universal use in AC and DC systems.

The unit has 3 x 4-20mA analog outputs. Any measurement can be output as analog value.

The unit has 4 digital inputs and 2 relay outputs with programmable functionality, selected from a list.

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 device has 1MB (optional 16MB) internal memory for the record of all electrical parameters with required frequency. Records are read through Modbus.

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

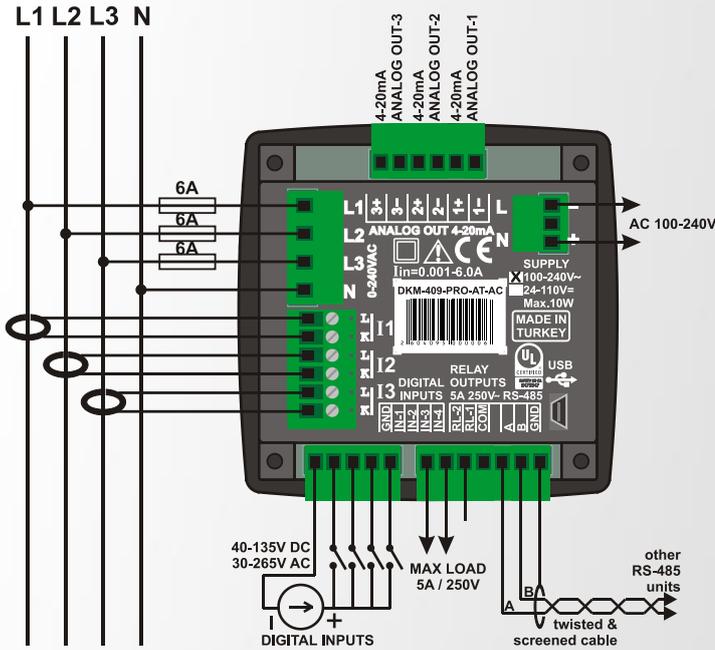
Ph-N and Ph-Ph volts: V1-V2-V3-U12-U23-U31-
Phase and neutral currents: I1-I2-I3-In
Phase and total, active/reactive/apparent powers: P1-P2-P3-Q1-Q2-Q3-S1-S2-S3- Σ P- Σ Q- Σ S
Ph and total power factor: pf1-pf2-pf3- Σ pf
Active and reactive counters: Pimp1-Pexp1-Qcap1-Qind1, Pimp2-Pexp2-Qcap2-Qind2
User counters: USR1-USR2-USR3-USR4
2...49 Harmonics of any voltage or current

FEATURES

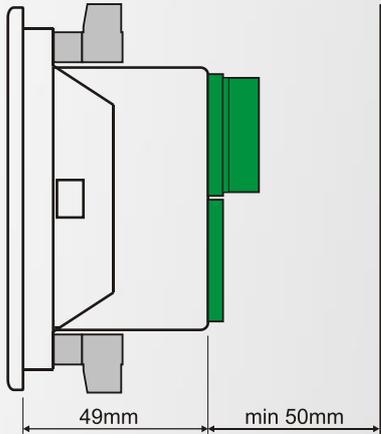
- True RMS measurements**
- 0.5% measurement accuracy**
- Isolated current inputs**
- 1A/5A current input selection**
- 4 quadrant energy counters**
- Internal 1MB record memory (optional 16MB)**
- Harmonic distortion display (49 harmonics)**
- Oscilloscope, waveform display**
- Max demand display**
- 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**
- 3 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**
- Free configuration program**
- High visibility, 128x64 pixels graphic LCD**
- Reduced panel depth**
- Wide supply range 85-270VAC / 88-400VDC**
- Wide operating temperature range**
- Sealed front panel (IP54)**
- Plug-in connection system**



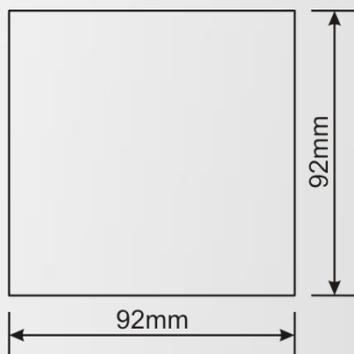
CONNECTION DIAGRAM



MOUNTING TOLERANCES



PANEL CUTOUT DIMENSIONS



TECHNICAL SPECIFICATIONS

Power Supply Input:

85-270V AC ($\pm 15\%$), 50 - 60Hz ($\pm 10\%$)
88-400V DC

Measurement Input Range:

Voltage: 7 - 300 V AC (L-N)
14 - 520 V AC (L-L)
Current: 0.001 - 6.0 A AC
Frequency: 30 - 100 Hz

Accuracy:

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

Withstanding:

Current: 100 A AC during 1 sec.
Voltage: 1300 V AC (continuous)

Analog outputs: Active, 4-20mA

Precision: 16bit

Measurement Range:

CT range: 5/5A to 50000/5A
V.T range: 0.1/1 to 5000.0/1
kW range: 1.0 kW to 5000 MW

Power Consumption:

< 15 VA

Voltage burden:

< 0.02VA per phase

Current burden:

< 0.5VA per phase

Relay Outputs:

5A @ 250V AC

Digital Inputs:

Active level: 40 to 135V-DC
or 30 to 265V 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)

UL-CSA Certification:

UL 61010-1, 3rd Edition, 2012-05,

CAN/CSA-C22.2

File: E475547, Vol. D1