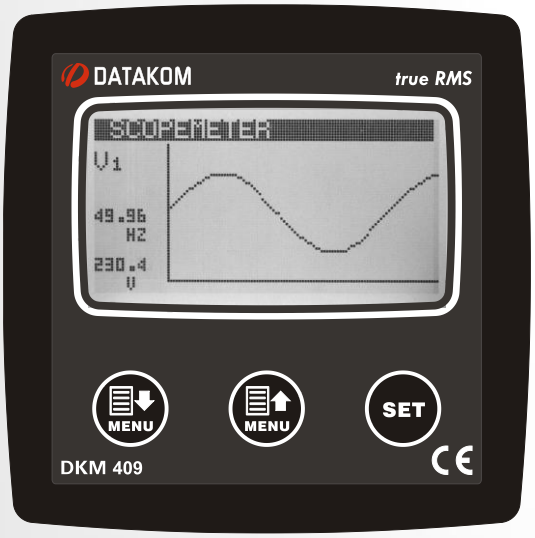
# DKM-409-T

## NETWORK ANALYSER

- **BOTH AC & DC SUPPLY**
- **4MB RECORD MEMORY**
- **HARMONIC ANALYSIS**
- **SCOPEMETER**
- **2 DIGITAL INPUTS**
- **2 RELAY OUTPUTS**




## INTRODUCTION

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

Current inputs of the device are isolated. They can be connected in series with other devices.

The unit has 2 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 4MB 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-∑P-∑Q-∑S

Ph and total power factor: pf1-pf2-pf3-∑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

***EN61557-12 Class 0.5 active energy***
***EN61557-12 Class 2.0 reactive energy***
***True RMS measurements***
***Isolated current inputs***
***1A/5A current input selection***
***4 quadrant energy counters***
***Universal supply range: 60-300VAC, 19-400VDC***
***Configurable user counters***
***Internal 4MB record memory***
***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***
***2 optically isolated, configurable digital inputs***
***Voltage transformer ratio for MV applications***
***Password protected front panel programming***
***Switched dual active-reactive power counters***
***Independent mains/generator energy metering***
***Free configuration program***
***High visibility, 128x64 pixels graphic LCD***
***Reduced panel depth***
***Wide operating temperature range***
***Sealed front panel (IP54)***
***Plug-in connection system***

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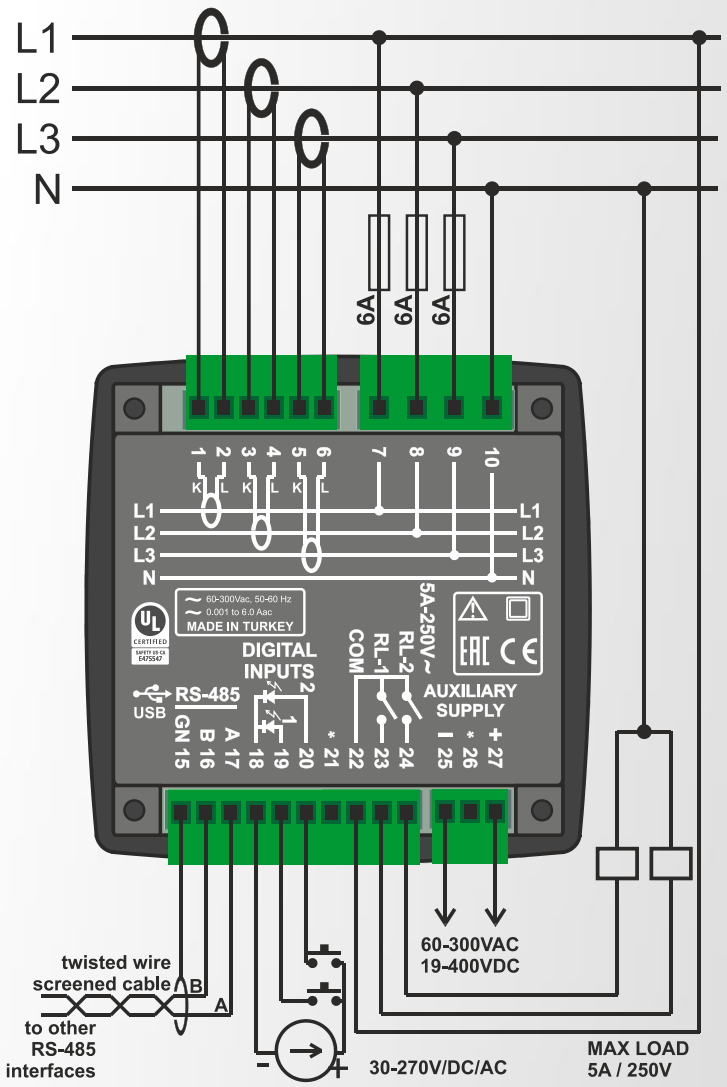
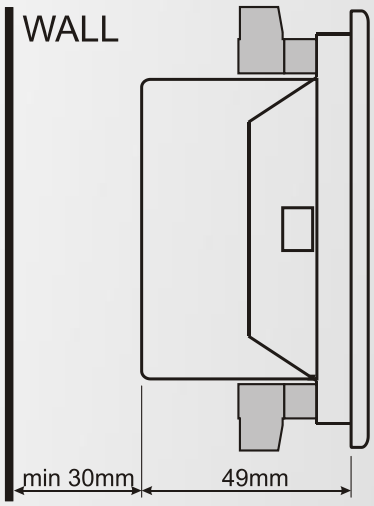
## CONNECTION DIAGRAM




## MOUNTING TOLERANCES




## TECHNICAL SPECIFICATIONS

**Auxiliary Supply:**
60-300V AC, 50 - 60Hz (± 10%)
19-400V DC

**Current Transformer Selection:** 1A or %A

**Measurement Input Range:**

| | |
|---|---|
| **Voltage:** | 60 - 300 V AC (L-N) |
| | 104 - 520 V AC (L-L) |
| **Current:** | 0.001 – 6.0 A AC |
| **Frequency:** | 30 - 100 Hz |

**Accuracy:**

| | |
|---|---|
| **Voltage:** | 0.5% |
| **Current:** | 0.5% |
| **Frequency:** | 0.5% |
| **Active Power:** | 0.5% |
| **Reactive Power:** | 2.0% |
| **Power factor:** | 0.5% |

**Measurement Range:**

| | |
|---|---|
| **CT range:** | 5/5A to 5000/5A |
| **V.T 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:** < 0.2VA per phase

**Withstanding:**

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

**Relay Outputs:** 5A @ 250V AC

**Digital Inputs:**

| | |
|---|---|
| **Active level:** | 30 to 270V-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, high temperature ABS/PC (UL94-V0)
**Installation:** Flush mounting with rear brackets
**Dimensions:** 102x102x53mm (WxHxD)
**Panel Cutout:** 92x92mm
**Weight:** 200 gr

| **EU Directives:** | **Norms of reference:** |
|---|---|
| 2014/35/EC (LVD) | EN 61010 (safety) |
| 2014/30/EC (EMC) | EN 61326 (EMC) |

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