DKM-407 DIN RAIL TYPE NETWORK ANALYZER

The DKM-407 is a DIN rail mounted precision unit allowing measurement and monitoring of AC parameters of a distribution panel.

The unit is supplied between L1 and Neutral terminals. Thanks to the supply range of 85-305V, it is not affected by voltage fluctuations and is capable of operating in any network.

The unit features an 32-bit ARM core microcontroller. With a sampling rate of 4096s/s it reaches 0.5% precision.

The isolated RS-485 Modbus RTU port is not affected by ground potential differences.

Program parameters may be uploaded from PC.

SAFETY NOTICE

Failure to follow below instructions will result in death or serious injury

- Electrical equipment should be installed only by qualified specialist. No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences resulting from the non-compliance to these instructions.
- Check the unit for cracks and damages due to transportation. Do not install damaged equipment.
- Do not open the unit. There is no serviceable parts inside.
- Fuses of fast type (FF) with a maximum rating of 6A must be connected to phase voltage inputs, in close proximity of the unit.
- Disconnect all power before working on equipment.
- When the unit is connected to the network do not touch terminals.
- Short circuit terminals of unused current transformers.
- Any electrical parameter applied to the device must be in the range specified in the user manual.
- Verify correct terminal connections before applying power.

INSTALLATION

Before installation:

- Read the user manual carefully, determine the correct connection diagram.
- Install the unit to the DIN rail.
- Make electrical connections with plugs removed from sockets, then place plugs to their sockets.
- Note that the power supply and measuring circuits use common neutral.

Below conditions may damage the device:

- Incorrect connections.
- Incorrect power supply voltage.
- Voltage at measuring terminals beyond specified range.
- Current at measuring terminals beyond specified range.
- Connecting or removing data terminals when the unit is powered-up.
- Overload or short circuit at relay outputs
- Voltage applied to digital inputs over specified range.
- High voltage applied to communication port.

Below conditions may cause abnormal operation:

- Power supply voltage below minimum acceptable level.
- Power supply frequency out of limits
- Phase order of voltage inputs not correct.
- Current transformers not matching related phases.
- Current transformer polarity incorrect.

Detailed user manual of this product may be downloaded at:

www.datakom.com.tr

ELECTRICAL CONNECTIONS

Do not install the unit close to high electromagnetic noise emitting devices like contactors, high current busbars, switchmode power supplies and the like.

Although the unit is protected against electromagnetic disturbance, excessive disturbance can affect the operation, measurement precision and data communication quality.

- **Use cables of appropriate temperature range.**
- **Use adequate cable section, at least 0.75mm^2 (AWG18).**
- **For current transformer inputs, use at least 1.5mm^2 section (AWG15) cable.**
- **The current transformer cable length should not exceed 1.5 meters. If longer cable is used, increase the cable section proportionally.**
- **Follow national rules for electrical installation.**
- **Current transformers must have 5A output.**

Current Transformers must be used for current measurement.

No direct connection allowed.

TECHNICAL SPECIFICATIONS

Supply voltage: 85-305 V AC (L1-NEUTRAL)
Supply frequency: 45-65Hz
Measurement inputs:
- **Voltage:** 10 - 305 V AC (P-N)
  20 - 530 V AC (P-P)
- **Current:** 0.2 - 6.00 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
- **Cos:** %2.0 + 2 digit

Measurement range:
- **CT range:** 5**/**5A to 5000**/**5A
- **VT range:** 0.1**/**1 to 200.0**/**1
- **kW range:** 0.1 kW to 6.5 MW

Power consumption: < 4 VA

Loading:
- **Voltage inputs:** < 0.1VA per phase
- **Current inputs:** < 1VA per phase

Relay output: 5A @ 250V AC
Digital input:
- **Active level:** 5 - 30V DC or AC
- **Min pulse:** 250ms.
- **Isolation:** 1000V AC, 1 minute

Operating temp. range: -20°C to +70 °C
-4 °F to 158°F
Max. Relative humidity: 95% non condensing
Enclosure: Flame retardent, ROHS compliant, high temperature ABS/PC (UL94-V0)
Installation: DIN rail mounted
Dimensions: 70x115x66mm (WxHxD)
Weight: 200 g (approximative)

EU Directives:	**Reference standards:**
2006/95/EC (LVD)	EN 61010 (safety)
2004/108/EC (EMC)	EN 61326 (EMC)

PUSHBUTTON FUNCTIONS

Three buttons on the front panel provide access to configuration and measurement screens.

BUTTON	FUNCTION
	**Selects display context** • **THD display** • **Minimum values display** • **Maximum values display** • **Demand display**
	**HELD PRESSED FOR 5SEC:** **resets min-max values and displays minimum phase-to-neutral voltages.**
	• **Upper screen** • **Increase (config.)**
	• **Lower screen** • **Decrease (config.)**
	IF NO BUTTON PRESSED FOR 5 MINUTES: **returns to the main display screen**

PROGRAMMING

BUTTON	FUNCTION
	**In order to enter the configuration menu, hold both arrow buttons pressed for 2 seconds.**
	**Pressing the SET button will save the current parameter and display the next parameter.**
	**Holding the SET button pressed for 2 seconds will display the previous parameter.**

PROGRAM PARAMETERS

SCREEN	FUNCTION
dmd CLr	**0:** No action **1:** Reset Demand values
Enr CLr	**0:** No action **1:** Reset kWh and kVArh counters
hoU CLr	**0:** No action **1:** Reset hour counter
ALr CLr	**0:** No action **1:** Reset alarms
d SP SEL	Default screen selection (refer user manual)
crt	Current transformer primary (xxx/5A format)
uLt trF	Voltage transformer ratio (xxx.x/1 format)
uLH	High voltage alarm limit. If set to 0 then does not check high voltage.
uLL	Low voltage alarm limit. If set to 0 then does not check low voltage.
Fr9 h9H	High frequency alarm limit. If set to 0 then does not check high frequency.
Fr9 Lo	Low frequency alarm limit. If set to 0 then does not check low frequency.
CrH	Overcurrent alarm limit. If set to 0 then does not check the limit.
ACH	High active power alarm limit. If set to 0 then does not check the limit.
ACL	Low active power alarm limit. If set to 0 then does not check the limit.
rAH	High reactive power alarm limit. If set to 0 then does not check the limit.
rAL	Low reactive power alarm limit. If set to 0 then does not check the limit.
CSH	High power factor alarm limit. If set to 0 then does not check the limit.
CSL	Low power factor alarm limit. If set to 0 then does not check the limit.
nod Adr	Device Modbus address (0-255)
bAU rAt	RS-485 baud rate (0=2400 / 1=4800 / 2=9600 / 3=19200 / 4=38400 / 5=57600 / 6=115200)

INSTALLATION DIAGRAM