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-power in control

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DATA SHEET

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LAN Server
For Energy and Power meters AEM and APM with Modbus interface

- Data logging
- Web Server interface
- Gateway - Modbus TCP/IP
- FTP
- DynDNS
- Up to 32 Energy and Power meters

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1. General information

Application

The LAN Server is to be connected to DEIF's energy and power meters, AEM and APM, by its Modbus interface, for the purpose of collecting the measured data from the instrument. Access them by a web browser through a TCP/IP network or by Modbus TCP/IP. For direct access to the logged data, it can be provided by the internal FTP server.

It can be used in a local network (LAN) or a geographic network (WAN), which makes the product suitable for remote data collection through the Internet. The Modbus/TCP protocol provides the ability to access the energy and power meters to a remote client over the network. The LAN Server also has DHCP and Dynamic DNS support.

Application examples

- Sub-metering installations
  - Apartments
  - Campsites
  - Marinas
- Energy Management Systems
- Remote Monitoring Systems

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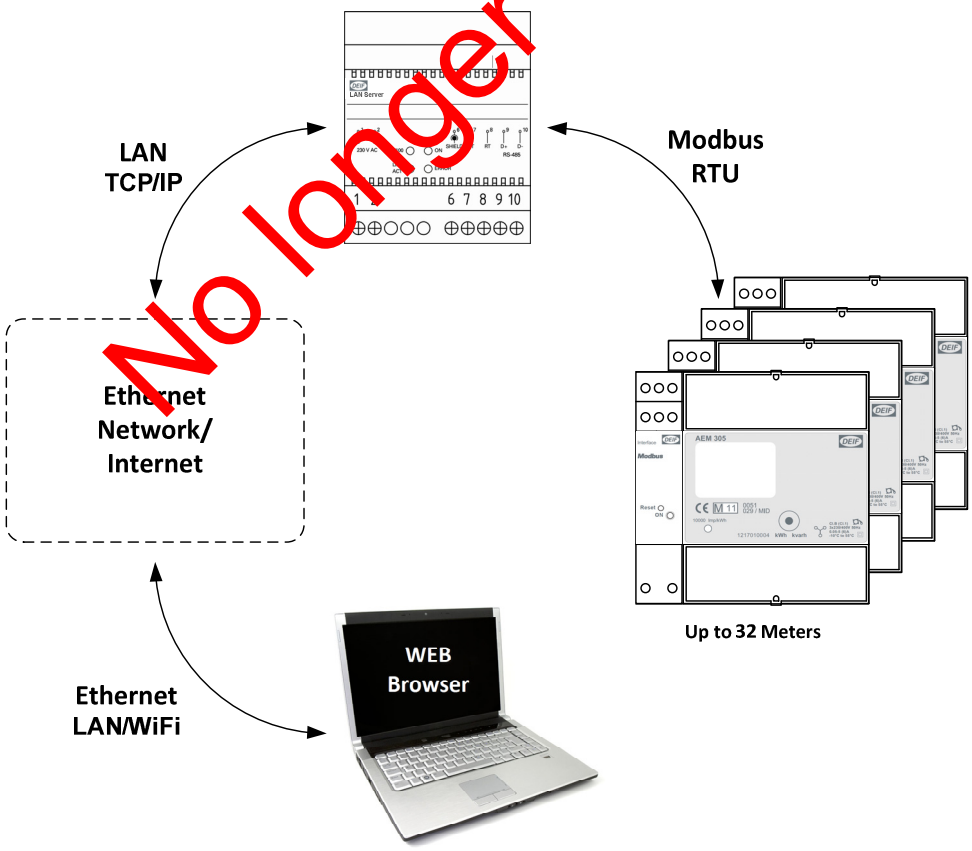

Overview

Configuration

For configuration, the LAN Server offers a web-based configuration interface. All the parameters that can be modified by the user can be set simply connecting to the device through a normal web browser on a preset IP address. Such parameters are for instance the network parameters (IP address, subnet mask and gateway or DHCP), and general settings.

Plug and play

The LAN Server is able to automatically recognise the instrument connected to Modbus interface. This is an advantage in terms of flexibility, because the same interface can be connected, for instance, to single-phase or three-phase energy and power meter.

Storage of the measurements

The measurements in transit from the instrument towards the TCP/IP network can be intercepted and stored inside the LAN Server itself, until the saturation of the space of memory available. The saturation condition depends, of course, on sampling frequency of the measurements and on the number of measurements (related to the type of energy meter connected to the Modbus interface, for instance single-phase or three-phase). The data can be stored in the LAN Server and subsequently downloaded to the user's PC, via web for a detailed examination. The data are stored in text format (CSV, Comma Separated Values).

Date and time

It has the capability to synchronise date and time using NTP (Network Time Protocol).

Baud rate

The pure speed of transmission is limited by the band capacity, which is 9600 baud on the IR interface. The LAN Server is enabled to operate in 10/100 Mbps networks.

FTP Server

It is possible to access the logged data and real-time values by means of .csv files located in the internal storage. The FTP server provides the data, using an FTP client to retrieve them to an external location.

DynDNS

The use of Dynamic DNS allows the LAN Server to be accessible to other nodes on the Internet while not owning a static address, such as using DHCP. An update client built into the LAN Server keeps the hostname up to date with its current IP address.

SNMP Agent

The LAN Server has an internal SNMP protocol for device diagnostics. Support for Get and GetNext (and obviously GetResponse) messages. The set message is allowed, but only for writes with the default values (no change).

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Modbus TCP/IP available quantities

Available quantities when connected with single-phase counters:	**Available quantities when connected with three-phase counters:**
Active energy imported, tariff 1	Active energy imported, tariff 1, L1
Active energy imported, tariff 2	Active energy imported, tariff 1, L2
Active energy exported, tariff 1	Active energy imported, tariff 1, L3
Active energy exported, tariff 2	Active energy imported, tariff 1, total
Active Power	Active energy imported, tariff 2, L1

Reactive energy imported, tariff 1	Active energy imported, tariff 2, L2
Reactive energy imported, tariff 2	Active energy imported, tariff 2, L3
Reactive energy exported, tariff 1	Active energy imported, tariff 2, total
Reactive energy exported, tariff 2	Active energy exported, tariff 1, L1
Reactive Power	Active energy exported, tariff 1, L2
Voltage	Active energy exported, tariff 1, L3
Current	Active energy exported, tariff 1, total
Apparent Power	Active energy exported, tariff 2, L1
Power Factor cos phi	Active energy exported, tariff 2, L2
Frequency	Active energy exported, tariff 2, L3
Tariff in use	Active energy exported, tariff 2, total
Status	Active Power L1
	Active Power L2
	Active Power L3
	Active Power total
	Reactive energy imported, tariff 1, L1
	Reactive energy imported, tariff 1, L2
	Reactive energy imported, tariff 1, L3
	Reactive energy imported, tariff 1, total
	Reactive energy imported, tariff 2, L1
	Reactive energy imported, tariff 2, L2
	Reactive energy imported, tariff 2, L3
	Reactive energy imported, tariff 2, total
	Reactive energy exported, tariff 1, L1
	Reactive energy exported, tariff 1, L2
	Reactive energy exported, tariff 1, L3
	Reactive energy exported, tariff 1, total
	Reactive energy exported, tariff 2, L1
	Reactive energy exported, tariff 2, L2
	Reactive energy exported, tariff 2, L3
	Reactive energy exported, tariff 2, total
	Reactive Power L1
	Reactive Power L2
	Reactive Power L3
	Reactive Power total
	Voltage L1-N
	Voltage L2-N
	Voltage L3-N
	Voltage L1-L2
	Voltage L2-L3
	Voltage L3-L1
	Current phase1
	Current phase2
	Current phase3
	Apparent Power phase1
	Apparent Power phase2
	Apparent Power phase3
	Apparent Power Total
	Power Factor cos phi phase1
	Power Factor cos phi phase2
	Power Factor cos phi phase3
	Frequency
	Tariff in use
	Status

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2. Technical data

Data in compliance with IEEE 802.3 AS, IEC 60950, EN 61000-6-2, EN 61000-4-2.

General characteristics			
Housing	DIN 43880	DIN	4 module
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Data storage	Flash memory	years	10
Auxiliary supply			
Auxiliary power rating		VA	≤ 10
Auxiliary voltage rating Un		V(AC)	230
Auxiliary voltage range		V(AC)	(0.80 to 1.20)x Un
Frequency rating		Hz	50
Frequency range		Hz	45…65
Operating features			
System start			Automatic at connection of auxiliary power
LAN Gateway data addressing	LAN limited		by means of IP address
Data transfer speed		Mbit/s	≤ 100
User interface for setup and management	Internet browser		Web browser
Required software tool			yes
Suitable for both single-phase and three-phase meters			
LAN interface			
HW interface			RJ 45 connector
SW protocol			TCP/IP
Application level protocols			HTTP-Modbus/TCP-FTP-SNTP- DHCP-DNS-DynDNS-SNMP
Instruments bus interface			
HW interface	RS 485 Terminals	No.	3 (±,cable shield)
Cable	Type		STP (shielded twisted pair)
	Conductor cross section	mm²	≥ 2 x 0.2 or 2 x 24 AWG
	Conductor capacitance	pF/m	≤ 50
	Impedance	Ω	100
Cable length		m	≤ 100
Installation type			serial
Directly connected instruments	RS 485	No.	32
SW protocol			Modbus
Modbus version			RTU
Safety acc. to IEC 60950			
Degree pollution			2
Overvoltage category			II
Working voltage		V	300
Material group			II
Clearance		mm	≥ 4.0
Creepage distance		mm	≥ 4.5
Test voltage	50 Hz 1 min	kV	4.0

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Housing material flame resistance	UL 94	class	V0
Connection terminals			
Cage type	Screw head Z±	POZIDRIV	PZ1
Terminal capacity	Solid wire min.(max)	mm²	0.75(6)
	Stranded wire with sleeve min.(max)	mm²	0.75(6)
Environmental conditions			
Operating temperature		°C	0...+55
Relative humidity		%	≤ 80
Limit temperature of transportation and storage		°C	-20...+70
Vibrations(sinusoidal)	5 Hz to ≤ 10 Hz constant displacement	mm	± 0.25
	Acc. to IEC 60950		
Protection class	Housing when mounted		II
Degree of protection			IP50 (IP20)

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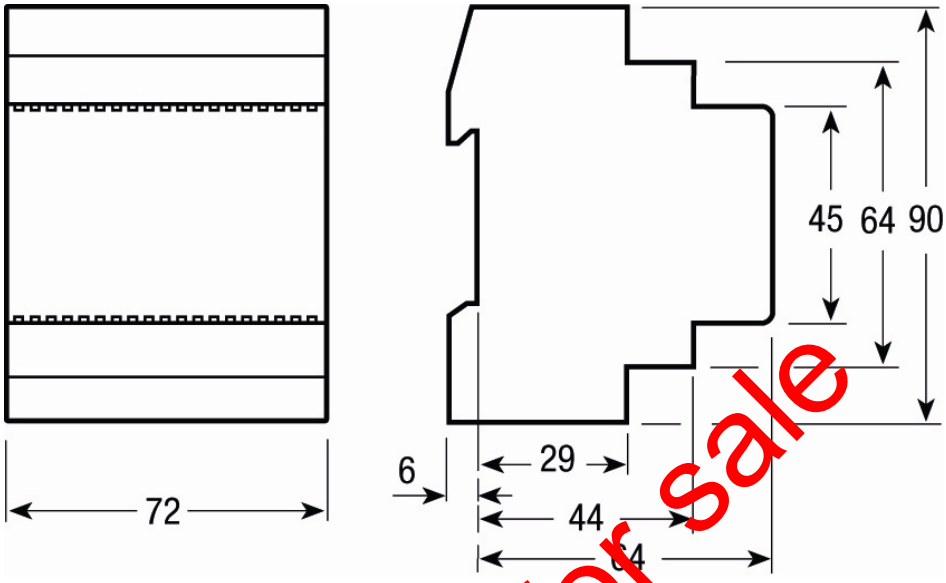
3. Unit dimensions



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4. Ordering information

LAN Server

Type	Order details
LAN Server	Data Logger, Gateway and Web Interface - up to 32 energy and power meters. Modbus RTU, Modbus TCP/IP, DynDNS, FTP. Aux. supply: 230V AC/50 Hz DEIF no. 1217030005 EAN no. 5703727113477

Energy Meters

Type	Order details
AEM 380	Three-phase energy meter, 80 A, 2S0, 2 tariffs, MID-approved. Aux. supply: 230V AC/ 50 Hz DEIF no. 1217010002 EAN no. 5703727110063
AEM 305	Three-phase energy meter, CT../5 A, 2S0, 2 tariffs, MID-approved. Aux. supply: 230V AC/ 50 Hz DEIF no. 1217010004 EAN no. 5703727110070
AEM 180	Single-phase energy meter, 80 A, 2 tariffs, 2S0, MID-approved. Aux. supply: 230V AC/ 50 Hz DEIF no. 1217000002 EAN no. 5703727110056

Power Meters

Type	Order details
APM 380	Three-phase power meter, 80 A, 2S0. Aux. supply: 230V AC/50 Hz DEIF no. 1217020002 EAN no. 5703727110094
APM 305	Three-phase power meter, CT../5 A, 2S0. Aux. supply: 230V AC/50 Hz DEIF no. 1217020001 EAN no. 5703727110087

Interface

Type	Order details
Modbus Interface	Modbus - RTU/ASCII for energy and power communication. Aux. supply: 230V AC/50 Hz DEIF no. 1217030001 EAN no. 5703727110100

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