LANSEN

A FIDELIX COMPANY

LAN-WMBUS-C4-SERIES

C4-Series Ethernet Concentrator - wM-Bus to M-Bus IP

DEVICE

The C4 ethernet concentrator is an easy-to-install device used for collecting data from wM-Bus meters and sensors. Device will decrypt the data and convert it to M-Bus UDP or TCP format. To the MBus telegram extra information is added such as RSSI, duration (age of message) and error information.

ANTENNA

The device has two options regarding antennas. Both internal and external antenna interface is selectable to have maximum performance in each given installation. The internal antennas are mounted at 90 degrees from each other to take advantage of both horizontal and vertical polarizations. This maximizes the range while minimizing multipath problems. The antenna diversity prevents losses due to polarization, especially indoors since meters and sensors can be mounted both to the sides and above/below the concentrator.

The optional external SMA-interface is suitable for an antenna to cover larger areas or long distances.

DECRYPTION

The data is made available using the secondary address for an easy integration with your PLC/DUC/Substation that has an internal MBUS parser. The concentrator decrypts all meter and sensor packets, and encrypts all keys stored. The device can store the latest received message from up to 950 sensors/meters.

CONFIGURATION

Configuration is done using a telnet client such as putty. It is recommended using a telnet client that sends complete strings and not one for each character.

The configuration has many parameters can be changed such as:

- IP settings
- meter list
- encryption keys
- etc.

The configuration is password protected with a password that can be changed. If password is lost it is possible to factory reset the device.

FIRMWARE UPGRADE

The Concentrator firmware can be upgraded on site using a LAN-CF-CABLE cable from Lansen.

M-Bus wireless

ETHERNET

EXAMPLE MBUS DATA REQUEST

Request data from the C4 for a specific temperature sensor with ID LAS 00046467.09.1B (LAN-WMBUS-CX-TH)

PLC -> Select using secondary address
68 0B 0B 68 53 FD 52 55 51 09 00 33 30 FF FF XX 16
C4 -> ACK
E5
PLC -> Request data
10 7B FD 78 16
C4-> Data response.
68 45 45 68 08 FD 72 67 64 04 00 33 30 09 1B CA 00 00 20 0C 78 63 02 16 00 03 74 59 00 00 01 FD 71 D0 01 FD 17 00 81 40 FD 17 00 02 65 C8 08 42 65 CA 08 82 01 65 B5 08 01 FB 1B 10 41 FB 1B 10 81 01 FB 1B 13 02 23 B4 01 17 16

EXAMPLE MBUS STRUCTURE

DR	MBUS header with meter serial	72 67 64 04 00 33 30 09 1B CA 00 00 20	LAS.00046467.09.1B
1	C4 fabrication number	0C 78 63 02 16 00	00160263
2	Age of message (seconds)	03 74 59 00 00	89 seconds
3	RSSI	01 FD 71 D0	-48 dBm
4	Sensor Status byte (error flags)	01 FD 17 00	
5	GW information flags (error flags)	81 40 FD 17 00	0x01 = encryption key is not set 0x02 = data was received, not encrypted 0x04 =no data received yet 0x08 = data could not be decrypted, wrong encryption key. 0x10 = not supported WMBUS header 0x20 = not supported encryption mode 0x40 = too long WMBUS packet
6	Data copied from sensor DR1	02 65 C8 08	22.48 °C
7	DR2	42 65 CA 08	22.50 °C
8	DR3	82 01 65 B5 08	22.29 °C
9	DR4	01 FB 1B 10	16%
etc	...	...	...

Specifications in this document are subject to change without notice

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FIRMWARE

INPUT MODE	T/C-mode (default) or S-mode
MAX SENSORS	950 sensors
MAX PACKET LENGTH	255 bytes
DECRYPTION	Supports decryption of Security Profile A OMS 4 (wM-bus mode 5) with short 0x7A or long header 0x72. Unsupported packets that are not decrypted are placed in LVAR container. Security Profile B is comming soon.
INSTALLATION TOOL	Software for massuppload sensors as CSV file is available

GENERAL INFORMATION

POWER SUPPLY	LAN-WMBUS-C4-M-LR-IP 85-305 VAC LAN-WMBUS-C4-M-POE-IP power over ethernet.
STANDARDS	2014/53/EU (RED) EN 13757 EN 61000-6-1 (3V/m)
TEMPERATURE	-20°C/+65°C

RADIO

RECEIVER CLASS	2
HARDWARE FILTER	For LTE/GSM/GPRS and other disturbances:

ENCLOSURE

DIMENSIONS	150x150x53 mm,
IP-CLASSIFICATION	IP40
COLOR	RAL 9003 (signal white)
MATERIAL	UV-resistant PC/ABS
FLAMMABILITY RATING	UL 94 HB

ETHERNET / MBUS IP

IP DATA MODES	TCP or UDP
IP CONFIGURATION	Telnet
DEFAULT IP	192.168.11.5
HARDWARE INTERFACE	RJ45
ETHERNET SPEED	Automatic
MBUS ADDRESSING	Only secondary addressing is supported
SIMULTANEOUS REQUEST	1
RESPONSE TIME	Typically less than 200 ms.

CONFIGURATION COMMANDS

SET IP
GET IP
SET GW
GET GW
SET IN PORT
GET IN PORT
SET OUT PORT
GET OUT PORT
SET MASK
GET MASK
GET MAC

ADD SENSOR
LIST SENSOR
LIST SENSORS
NUMBER OF SENSORS
CLEAR ALL SENSORS
DELETE SENSOR
SET AUTO
GET CONFIG
SAVE SETTINGS
REBOOT
SET PASSWD
LOGOUT

CONFIGURATION EXAMPLES

"ADD SENSOR LAS.00042582.1B.07;F10BB4E9403DC93AB09696D488CCEEAE;"

"LIST SENSORS"

Mfg	SN	Device-type(hex)	Ver-sion(hex)	Key Status	Status Reg	Dura-tion(s)	RSSI(dBm)
LAS	20000020	1B	07	SET	7E	-1	Na
LAS	30000030	1B	07	OK	0	30	-26
LAS	40000040	1B	07	OK	0	27	-1
LAS	10000011	1B	07	OK	0	47	-17

STATUS REG

0x01 = encryption key is not set
0x02 = data was received, not encrypted
0x04 =no data received yet
0x08 = data could not be decrypted, wrong encryption key.
0x10 = not supported WMBUS header
0x20 = not supported encryption mode
0x40 = too long WMBUS packet

DEVICES

LAN-WMBUS-C4-M-IP-A1	(Mains powered with internal antennas)
LAN-WMBUS-C4-POE-IP-A1	(POE powered with internal antennas)
LAN-WMBUS-C4-M-IP-A1-X	(Mains powered with SMA interface)
LAN-WMBUS-C4-POE-IP-A1-X	(POE powered with SMA interface)

ACCESSORY

LAN-CF-CABLE	USB upgrade cable.

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