

wireless M-Bus / OMS Data Mapping in pikkerton MBS-xxx Devices

18th of November 2014



Example telegram from MBS-xxx with the serial number xxxx12345678.

This telegram is sent without request in a manufacturer specific time cycle.

1		Start Character	0xFF			Control block for RF module
2		Command	0x00		Command for RF module (Amber Wireless) 0x00 = CMD_DATA_REQ	
3		L-Field	xx-3		Length of Frame starting here without checksum	
4		C-Field	0x44		Reason for cause and category of telegram. 0x44 = Priodic application data without request	
5		M-Field	0x2B		Manufacturer code for PIK (*)	
6		M-Field	0x41			
7		A-Field	0x78		Serial number BCD LSB	
8		A-Field	0x56		Serial number BCD	
9		A-Field	0x34		Serial number BCD	
10		A-Field	0x12		Serial number BCD MSB	
11		A-Field	0x01		Version number	
12		A-Field	0x02		Device type 0x02 = Electricity meter (MBS-110/-111/-112) 0x1B = Ambient Sensor (MBS-120/-121/-122)	
13		CI Field	0x7A		4 Byte Header	Head of the wireless M-Bus protocol
14		Counter	0x01		Transmission Counter	
15		Status	0x00		State / Alarm	
16		Config	0x00		Shows whether this device works bidirectional or uses encryption	
17		Config	0x00			

18		Area for sensor data with contents DIF, VIF, Data			See below for different sensor data	Payload
xx						
xx+1		Checksum				

(*) <http://dlms.com/organization/flagmanufacturesids/index.html>

Temperature Sensor (Failure = 0xFFFF)

DIF	0x02	16-Bit Integer
VIF	0x66	Ambient temperature 10e-1 °C
Value LSB	0xD7	0x00D7 = 215 = 21,5°C
Value MSB	0x00	

Brightness Sensor (Sensor Failure = 0xFFFF)

DIF	0x02	16-Bit Integer
VIF	0x7C	User VIF, unencrypted ASCII string
VIF Length	0x02	Length of user VIF
	0x78	'x'
	0x6C	'l'
Value LSB	0xBC	0x00BC = 188 = 188lx
Value MSB	0x00	

CO2 (Sensor Failure = 0xFFFF)

DIF	0x02	16-Bit Integer
VIF	0x7C	User VIF, unencrypted ASCII string
VIF-Länge	0x03	Length of user VIF
	0x6D	'm'
	0x70	'p'
	0x70	'p'
Wert LSB	0xF2	0x09F2 = 2546 = 2546ppm
Wert MSB	0x09	

Rel. Humidity (Sensor Failure = 0xFF)

DIF	0x01	8-Bit Integer
VIF	0xFB	1st extension of VIF code. Set MSB shows following VIFE.
VIFE	0x1B	rel. humidity 10e0 %
Value	0x27	0x27 = 39 = 39%

Air Pressure (Sensor Failure = 0xFFFFFFFF)

DIF	0x04	32-Bit Integer
VIF	0x68	Pressure 10e-3 bar
Value LSB	0xFA	0x000003FA = 1018 = 1018 mbar
Value	0x03	
Value	0x00	
Value MSB	0x00	

Motion Detection

DIF	0x01	8-Bit Integer
VIF	0x7C	User VIF, unencrypted ASCII string
VIF-length	0x04	Length of user VIF
	0x45	'E'
	0x56	'V'
	0x4F	'O'
	0x4D	'M'
Value	0x01	Always 1 for detected motion

Pulse counter

DIF	0x03	24-Bit Integer
VIF	0xFD	2nd extension of VIF code. Set MSB shows following VIFE.
VIFE	0x3A	Dimensionless quantity
Value LSB	0x24	0x01A324 = 107300
Value	0xA3	
Value MSB	0x01	

Current state of pulse counter input

DIF	0x01	8-Bit Integer
VIF	0xFD	2nd extension of VIF code. Set MSB shows following VIFE.
VIFE	0x1B	digital input
Value	0x00	0x00 = input opened 0x01 = input closed

Frequency

DIF	0x04	32-Bit Integer
VIF	0xFB	1st extension of VIF code. Set MSB shows following VIFE.
VIFE	0x2C	Frequency 10e-3 Hz
Value LSB	0x94	0x0000C294 = 49812 = 49,812Hz
Value	0xC2	
Value	0x00	
Value MSB	0x00	

Voltage

DIF	0x01	8-Bit Integer
VIF	0xFD	2nd extension of VIF code. Set MSB shows following VIFE.
VIFE	0x49	Voltage 10e0 V
Value	0xE6	0xE6 = 230 = 230V

Current

DIF	0x02	16-Bit Integer
VIF	0xFD	2nd extension of VIF code. Set MSB shows following VIF
VIFE	0x59	Current 10e-3 A
Value LSB	0xB0	0x04B0 = 1200 = 1,200A = 1200mA
Value MSB	0x04	

Power

DIF	0x02	16-Bit Integer
VIF	0x2B	Power 10e0 W
Value LSB	0x14	0x0114 = 276 = 276W
Value MSB	0x01	

Work

DIF	0x04	32-Bit Integer
VIF	0x03	Work 10e0 Wh
Value LSB	0xD8	0x000059D8 = 23000 = 23000Wh
Value	0x59	
Value	0x00	
Value MSB	0x00	