FS-8705-36 – EKM Metering V.3 and V.4 Meters

DATASHEET – Rev 2

DESCRIPTION

This serial driver connects to a trunk of 1 or more (v3 and v4) EKM Meters using RS485. It is capable of reading energy, operational and status data from each meter.

The driver is capable of being linked with other FieldServer drivers to form regular FieldServer firmware that can be installed on QuickServer and other FieldServer gateways. Other drivers can access the EKM Meter data and serve using other protocols such as BACnet and Modbus.

The driver is an active client driver in that it poll's for data – reading or writing data from meters. It cannot be used to simulate and EKM meter. Because only the client side of the protocol is implemented.

QS-1XX0

QS-2XX0

QS-3XX0

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CONNECTION FACTS

FIELDSERVER MODE	NODES	COMMENTS
Client	Many	Number of Meters is determined by vendor and RS485 limitations. Trunks of dozens of devices supported.
Server	0	Not supported or documented.

FORMAL DRIVER TYPE

Serial RS485
Passive Client

COMPATIBILITY

FIELDSERVER MODEL	COMPATIBLE
FS-2010/2011/4010 (Legacy)	Yes
FS-35 Series	Yes
FS-QS Series	Yes

CONNECTION INFORMATION

Connection Type:	EIA485
Baud Rates:	Driver Supports: 9600; 19200; 28800; 38400; 57600 Baud
	EKM Meters supports: 9600
Data Bits:	Driver Supports: 7,**8**
	EKM Meters supports: 7
Stop Bits:	Driver Supports: **1**,2
	EKM Meters supports: 1
Parity:	Driver Supports: Odd, Even, **None**
	EKM Meters supports: Even
Hardware Interface:	N/A There is no flow control
Multidrop Capability:	Yes

DEVICES TESTED

DEVICE	TESTED (FACTORY, SITE)
Omnimeter Pulse V.4 Omnimeter I V.3	2019Jan Chipkin Offices.

CONNECTION CONFIGURATIONS

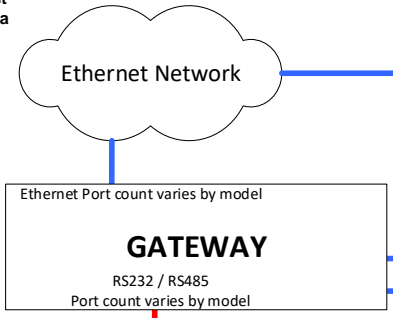Multiple upstream protocols and connection supported. See list of FieldServer Drivers.

Free BACnet test software with purchase*
Confidently test the BACnet interface. Discover devices and their objects. Test and document them. Arm yourself with a powerful field tool. Full license.

Other ethernet protocols such as
- HTTP, XML
- BACnet IP or Eth
- Modbus TCP
- AB-CSP
- Ethernet/IP
- SNMP, Telnet
- GE-EGD, GE-SRTP
- Omron FINS
- DNP3
      And more...

Ethernet Network

Other serial protocols such as
- Bacnet MSTP
- Modbus RTU, ASCII, and other flavors
- Rockwell DF1
- GE-SNP
- JCI Metasys N2
      And more...

Ethernet Port count varies by model

GATEWAY

RS232 / RS485
Port count varies by model

Other bus protocols such as
- Profibus
- DeviceNet
- DH+
- Modbus+
- ControlNet
- BACnet Arcnet

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Lonworks Network

Bluetooth Wireless Cell

EKM V3 and V4 Meters

Other Devices / Meters

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PROTOCOL SERVICES SUPPORTED / NOT SUPPORTED

PROTOCOL SERVICE	SUPPORTED
V3 Read Meter Data/Connect	Yes
V4 Read Meter Data A/Connect	Yes
V4 Read Meter Data B	Yes
V4 Set Relay	Yes
V4 Set Pulse Input Ratio	No. See Note 1
V4 Set Pulse Output Ratio	No. See Note 1
V4 Reset Resettable kWh Reverse	Yes
V4 Auto Reset Max Demand	No. See Note 1
V4 Set LCD	No.
v3/v4 Send Password	Yes
v3/v4 Change Password	No. See Note 1
v3/v4 Set Max Demand Period	No. See Note 1
v3/v4 Set Max Demand Reset Value	No. See Note 1
v3/v4 Set Time	Yes
v3/v4 Set CT Ratio	Yes
v3/v4 Set Schedule Tariffs	No. See Note 1
v3/v4 Read Schedule Tariffs	No. See Note 1
v3/v4 Set Seasons	No. See Note 1
v3/v4 Set Holidays	No. See Note 1
v3/v4 Read Holiday Dates	No. See Note 1
v3/v4 Set Schedule for Weekend and Holiday	No. See Note 1
v3/v4 Read 6 Months	Yes

Note 1 : These are configuration services. The data does not change during normal operation once installation and setup has been completed

If you require these services for as project please contact our sales department to get special firmware.

FS-8705-36 – EKM Metering V.3 and V.4 Meters

AVAILABLE DATA

V.4 Devices

Model,Firmware,Meter_Address,kWh_Tot,Reactive_Energy_Tot,Rev_kWh_Tot,kWh_Ln_1,kWh_Ln_2,kWh_Ln_3,Rev_kWh_Ln_1,Rev_kWh_Ln_2,Rev_kWh_Ln_3,Resettable_kWh_Tot,Resettable_Rev_kWh_Tot,RMS_Volts_Ln_1,RMS_Volts_Ln_2,RMS_Volts_Ln_3,Amps_Ln_1,Amps_Ln_2,Amps_Ln_3,RMS_Watts_Ln_1,RMS_Watts_Ln_2,RMS_Watts_Ln_3,RMS_Watts_Tot,Power_Factor_Ln_1,Power_Factor_Ln_2,Power_Factor_Ln_3,Reactive_Pwr_Ln_1,Reactive_Pwr_Ln_2,Reactive_Pwr_Ln_3,Reactive_Pwr_Tot,Line_Freq,Pulse_Cnt_1,Pulse_Cnt_2,Pulse_Cnt_3,State_Inputs,State_Watts_Dir,State_Out,kWh_Scale,Meter_Time,Year,Month,Day of Month,Day of Week,Hour,Minute,Second

kWh_Tariff_1,kWh_Tariff_2,kWh_Tariff_3,kWh_Tariff_4,Rev_kWh_Tariff_1,Rev_kWh_Tariff_2,Rev_kWh_Tariff_3,Rev_kWh_Tariff_4,RMS_Volts_Ln_1,RMS_Volts_Ln_2,RMS_Volts_Ln_3,Amps_Ln_1,Amps_Ln_2,Amps_Ln_3,RMS_Watts_Ln_1,RMS_Watts_Ln_2,RMS_Watts_Ln_3,RMS_Watts_Tot,Power_Factor_Adj_Ln_1,Power_Factor_Adj_Ln_2,Power_Factor_Adj_Ln_3,RMS_Watts_Max_Demand,Max_Demand_Period,Pulse_Ratio_1,Pulse_Ratio_2,Pulse_Ratio_3,CT_Ratio

Fwd
Month_1_Ttl,Month_1_Tariff_1,Month_1_Tariff_2,Month_1_Tariff_3,Month_1_Tariff_4,Month_2_Ttl,Month_2_Tariff_1,Month_2_Tariff_2,Month_2_Tariff_3,Month_2_Tariff_4,Month_3_Ttl,Month_3_Tariff_1,Month_3_Tariff_2,Month_3_Tariff_3,Month_3_Tariff_4,Month_4_Ttl,Month_4_Tariff_1,Month_4_Tariff_2,Month_4_Tariff_3,Month_4_Tariff_4,Month_5_Ttl,Month_5_Tariff_1,Month_5_Tariff_2,Month_5_Tariff_3,Month_5_Tariff_4,Month_6_Ttl,Month_6_Tariff_1,Month_6_Tariff_2,Month_6_Tariff_3,Month_6_Tariff_4

Rev
Month_1_Ttl,Month_1_Tariff_1,Month_1_Tariff_2,Month_1_Tariff_3,Month_1_Tariff_4,Month_2_Ttl,Month_2_Tariff_1,Month_2_Tariff_2,Month_2_Tariff_3,Month_2_Tariff_4,Month_3_Ttl,Month_3_Tariff_1,Month_3_Tariff_2,Month_3_Tariff_3,Month_3_Tariff_4,Month_4_Ttl,Month_4_Tariff_1,Month_4_Tariff_2,Month_4_Tariff_3,Month_4_Tariff_4,Month_5_Ttl,Month_5_Tariff_1,Month_5_Tariff_2,Month_5_Tariff_3,Month_5_Tariff_4,Month_6_Ttl,Month_6_Tariff_1,Month_6_Tariff_2,Month_6_Tariff_3,Month_6_Tariff_4

V.3 Devices

Model,Firmware,Meter_Address,kWh_Tot,kWh_Tariff_1,kWh_Tariff_2,kWh_Tariff_3,kWh_Tariff_4,Rev_kWh_Tot,Rev_kWh_Tariff_1,Rev_kWh_Tariff_2,Rev_kWh_Tariff_3,Rev_kWh_Tariff_4,RMS_Volts_Ln_1,RMS_Volts_Ln_2,RMS_Volts_Ln_3,Amps_Ln_1,Amps_Ln_2,Amps_Ln_3,RMS_Watts_Ln_1,RMS_Watts_Ln_2,RMS_Watts_Ln_3,RMS_Watts_Tot,Power_Factor_Adj_Ln_1,Power_Factor_Adj_Ln_2,Power_Factor_Adj_Ln_3,Max_Demand,Max_Demand_Period,CT_Ratio,Meter_Time,Year,Month,Day of Month,Day of Week,Hour,Minute,Second

HOW IS DATA STORED

When a driver task is executed, it will result in a response from the Meter. This data in the responses in extracted and is stored in the gateways internal Data Arrays. Any item in any Data Array can be mapped onto a data object of another protocol.

Most of the protocol services result in responses which contain a number of data items and thus this data is stored in a number of consecutive locations in a Data Array. The exact mapping and storage is documented in the driver manual.

If any of the data set is not required in the other protocol, then do not connect it to a data object in the other protocol.

Data can be scaled, manipulated, converted using internal gateway functions.

Example: Meter Data

Data Item	Type	Data Array Offset
Model	Byte	0
Firmware	Byte	1
Meter_Address	String	
kWh_Tot	Float	2
kWh_Tariff_1	Float	3
kWh_Tariff_2	Float	4
kWh_Tariff_3	Float	5
kWh_Tariff_4	Float	6
Rev_kWh_Tot	Float	7
Rev_kWh_Tariff_1	Float	8
Rev_kWh_Tariff_2	Float	9
Rev_kWh_Tariff_3	Float	10
Rev_kWh_Tariff_4	Float	11

Example Only. Do not use these offsets in a real project. Reference Driver Manuals for accurate

RMS_Volts_Ln_1	Float	12
RMS_Volts_Ln_2	Float	13
RMS_Volts_Ln_3	Float	14
Amps_Ln_1	Float	15
Amps_Ln_2	Float	16
Amps_Ln_3	Float	17
RMS_Watts_Ln_1	Integer	18
RMS_Watts_Ln_2	Integer	19
RMS_Watts_Ln_3	Integer	20
RMS_Watts_Tot	Integer	21
Power_Factor_Adj_Ln_1	String	22
Power_Factor_Adj_Ln_2	String	23
Power_Factor_Adj_Ln_3	String	24
Max_Demand	Float	25
Max_Demand_Period	Integer	26
CT_Ratio	Integer	27

SENDING COMMANDS TO THE METER

Some services allow you to send data to / command the meter. Such as 'Set Relay'. In these cases, when data is sent from the other protocol (eg BACnet) then this data is extracted from the Data Arrays and sent tot the Meter. This can occur on-update or on-time-interval.

CUSTOMER SUPPORT

EKM Meters Driver for FieldServer was developed by Chipkin, and we are proud to provide support for our products. For technical support, sales and customer service, please call us at 1 (866) 383-1657.

Thanks for choosing Chipkin's products and integration services to meet your building and industrial automation requirements!

Chipkin™ is a building and industrial automation protocol expert. We develop, configure, install and support gateways (protocol converters), data loggers and remote monitor and controlling applications. Founded in October 2000, Chipkin provides expert solutions for converting BACnet®, Modbus®, and LonWorks®—to name just a few—and enabling interfaces for HVAC, fire, siren, intercom, lighting, transportation and fuel systems. The high-quality products we offer (including those from other vendors) interface with Simplex™, Notifier™, McQuay™, GE™ and many others—so you can rest assured that we will select the most appropriate solution for your application.

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Sales and Customer Service

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REVISION HISTORY

DATE	RESP.	DRIVER VERSION	DOCUMENT REVISION	COMMENTS
14 Dec 2018	PMC	0.00	0	Created
21 Jan 2019	PMC	1.00	1	As Released
16 Jun 2021	YC	1.00	2	Updated to latest template