

Industrial communication solutions for Windows

XPOW3720 Driver Manual

Power Measurement 3720 ACM Protocol Driver

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XPOW3720 technical specifications

General information

XPOW3720 driver allows you to connect with POWER MEASUREMENT 3720 ACM Power Meter Series.

The link is established using the PML 3720 serial communications protocol over a RS-232 or RS-485 physical layer; however, you should consider that the RS-485 specification allows for multiple devices (up to 32) on a single loop, whereas the RS-232C allows for only a single device.

This driver includes one global command that can be used to read the most relevant variables from the PML 3720 ACM. If you need to read other parameters or write any information to the device, consider using the XMODBUS.DRV driver (modbus binary protocol) which is also supported by this Power Measurement family.

Typical communication settings:

8 Data bits, no parity and 1 stop bit. Baudrate is configurable.

If you cannot communicate or if you are using RS-485 to connect to the device, you should set the RTS signal during the communication. This can be done by setting the RTSEnable argument when calling the read and write methods. If you still cannot communicate, check that your RS-485 cables are not inverted.

Command list

Read Long Real-Time

Description of this command:

This command retrieves a detailed account of the real-time data measured by the 3720 ACM meter.

Methods used to run this command:

Analog Input

Number of points accepted by this command:

1-43

Meaning of the DriverP0 parameter:

Unit Address (1-9999)

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Number of additional values to be requested in the telegram. Should be 0. This parameter is a fix for meters that return less values than requested. For example, we found meters that return 6 values when asked to return 10 values, 14 values when asked for 27 and 27 values when asked for 43. This parameter should allow to use this command even if there is an error in the meter firmware. To read 27 values, set DriverNumPoints to 27 and P2 to 16.

Values that are returned:

Value in PointValue (0) = L-N Voltage Phase A
Value in PointValue (1) = L-N Voltage Phase B
Value in PointValue (2) = L-N Voltage Phase C
Value in PointValue (3) = L-N Voltage Average
Value in PointValue (4) = L-L Voltage Phase AB
Value in PointValue (5) = L-L Voltage Phase BC
Value in PointValue (6) = L-L Voltage Phase CA
Value in PointValue (7) = L-L Voltage Average
Value in PointValue (8) = Auxiliar Voltage
Value in PointValue (9) = Amperage Phase A
Value in PointValue (10) = Amperage Phase B
Value in PointValue (11) = Amperage Phase C
Value in PointValue (12) = Amperage Average
Value in PointValue (13) = I4 Neutral Current
Value in PointValue (14) = Voltage Imbalance (%)

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Value in PointValue (15) = Current Imbalance (%)
Value in PointValue (16) = KW Phase A
Value in PointValue (17) = KW Phase B
Value in PointValue (18) = KW Phase C
Value in PointValue (19) = KW Total
Value in PointValue (20) = KVAR Phase A
Value in PointValue (21) = KVAR Phase B
Value in PointValue (22) = KVAR Phase C
Value in PointValue (23) = KVAR Total
Value in PointValue (24) = Power Factor Phase A (%)
Value in PointValue (25) = Power Factor Phase B (%)
Value in PointValue (26) = Power Factor Phase C (%)
Value in PointValue (27) = Power Factor Total (%)
Value in PointValue (28) = KVA Phase A
Value in PointValue (29) = KVA Phase B
Value in PointValue (30) = KVA Phase C
Value in PointValue (31) = KVA Total
Value in PointValue (32) = Frequency on Va (0.01 Hz)
Value in PointValue (33) = Phase Reversal
Value in PointValue (34) = KW Hour Import
Value in PointValue (35) = KW Hour Export
Value in PointValue (36) = KW Hour Total
Value in PointValue (37) = KW Hour Net
Value in PointValue (38) = KVAR Hour Import
Value in PointValue (39) = KVAR Hour Export
Value in PointValue (40) = KVAR Hour Total
Value in PointValue (41) = KVAR Hour Net
Value in PointValue (42) = KVA Hour Total

Read Long Real-Time (Modbus Driver Emulation)

Description of this command:

This command retrieves a detailed account of the real-time data measured by the 3720 ACM meter, but accomodating the channel positions and values to fit those used by its equivalent Modbus RTU command (read 62 holding registers, starting at address 40011).

Methods used to run this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Unit Address (1-9999)

Meaning of the DriverP1 parameter:

3

Values that are returned:

Value in PointValue (0) = L-N Voltage Phase A
Value in PointValue (1) = L-N Voltage Phase B
Value in PointValue (2) = L-N Voltage Phase C
Value in PointValue (3) = Average L-N Voltage
Value in PointValue (4) = L-L Voltage Phase AB
Value in PointValue (5) = L-L Voltage Phase BC
Value in PointValue (6) = L-L Voltage Phase CA
Value in PointValue (7) = Average L-L Voltage
Value in PointValue (8) = Reserved
Value in PointValue (9) = Auxiliar Voltage
Value in PointValue (10) = Amperage Phase A
Value in PointValue (11) = Amperage Phase B
Value in PointValue (12) = Amperage Phase C
Value in PointValue (13) = Average Amperage
Value in PointValue (14) = Reserved
Value in PointValue (15) = I4 Neutral Current
Value in PointValue (16) = Reserved
Value in PointValue (17) = Voltage Imbalance (%)
Value in PointValue (18) = Current Imbalance (%)

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Value in PointValue (19) = Reserved
Value in PointValue (20) = KW Phase A
Value in PointValue (21) = KW Phase B
Value in PointValue (22) = KW Phase C
Value in PointValue (23) = KW Total
Value in PointValue (24) = KVAR Phase A
Value in PointValue (25) = KVAR Phase B
Value in PointValue (26) = KVAR Phase C
Value in PointValue (27) = KVAR Total
Value in PointValue (28) = Power Factor Phase A (%)
Value in PointValue (29) = Power Factor Phase B (%)
Value in PointValue (30) = Power Factor Phase C (%)
Value in PointValue (31) = Power Factor Total (%)
Value in PointValue (32) = KVA Phase A
Value in PointValue (33) = KVA Phase B
Value in PointValue (34) = KVA Phase C
Value in PointValue (35) = KVA Total
Value in PointValue (36) = Reserved
Value in PointValue (37) = Frequency on Va (0.01 Hz)
Value in PointValue (38) = Phase Reversal
Value in PointValue (39) = Reserved
Value in PointValue (40) = KW Hour Import
Value in PointValue (41) = M/GW Hour Import
Value in PointValue (42) = KW Hour Export
Value in PointValue (43) = M/GW Hour Export
Value in PointValue (44) = KW Hour Total
Value in PointValue (45) = M/GW Hour Total
Value in PointValue (46) = KW Hour Net
Value in PointValue (47) = M/GW Hour Net
Value in PointValue (48) =Reserved
Value in PointValue (49) =Reserved
Value in PointValue (50) = KVAR Hour Import
Value in PointValue (51) = M/GVAR Hour Import
Value in PointValue (52) = KVAR Hour Export
Value in PointValue (53) = M/GVAR Hour Export
Value in PointValue (54) = KVAR Hour Total
Value in PointValue (55) = M/GVAR Hour Total
Value in PointValue (56) = KVAR Hour Net
Value in PointValue (57) = M/GVAR Hour Net
Value in PointValue (58) =Reserved
Value in PointValue (59) =Reserved
Value in PointValue (60) = KVA Hour Total
Value in PointValue (61) = M/GVA Hour Total

Error messages

The following list shows the possible error messages that can be returned by the driver during a failed communication in the 'Status' property.

[1005] DRIVER (Internal): Invalid driver stage
[1300] PROTOCOL (Timeout): No answer
[1433] PROTOCOL (Format): Validation error in device response
[2001] CONFIG (DataType): Analog outputs are not supported by this driver
[2002] CONFIG (DataType): Digital inputs are not supported by this driver
[2003] CONFIG (DataType): Digital outputs are not supported by this driver
[2218] CONFIG (NumValues): Too many values (max=43)
[2229] CONFIG (NumValues): Too many values (max=62)
[3031] CONFIG (P0): Invalid device address (1-9999)
[3511] CONFIG (P1): Invalid command (0 or 3 only)

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Supported devices

This driver can communicate with these devices, but is not necessarily limited to this list:

POWER MEASUREMENT 3720 ACM Power Meter

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