

XIGEVAPO Driver Manual

IG Instrumentos Evaporimeter Driver



Evaporimeters



CPKSoft Engineering
Process Monitoring and Industrial
Automation Software

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1. Introduction

CPKSoft Engineering assumes no responsibility for any errors that may appear in this document. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

This driver is included with all unlimited licenses of TAS-HMITalk. It is not sold separately. It requires the TAS-HMITalk ActiveX to work, therefore it cannot be used as a stand-alone driver.

If you use this driver in your applications, you need to include the xigevapo.tlk in the set of files that you distribute. This file must be located in the same folder where the hmitalk.ocx file is registered in order to be found by the activex when the applications are executed.

The source-code for the xigevapo.tlk driver is available in plain-C language for additional USD 299 if you own a license of TAS-HMITalk 8.04 or higher.

Refer to the following link to visit the xigevapo driver page at CPKSoft Engineering website: <http://www.cpksoft.com/tabid/55/ProductID/53/PageIndex/1/Default.aspx>.

Visit this link if you want to see a complete list of drivers that are currently available for TAS-HMITak: <http://www.cpksoft.com/Drivers/tabid/55/Default.aspx>.

Also, refer to this link if you are interested in purchasing a license of the most recent version of TAS-HMITalk: <http://www.cpksoft.com/Products/tabid/54/Default.aspx>.

We welcome your comments about this document. You can reach us by e-mail at [contact @ cpksoft.com](mailto:contact@cpksoft.com).

2. Driver details

2.1. Driver overview

XIGEVAPO driver reads stored memory from IG Instrumentos Automatic Evaporimeter Data Loggers.

This driver implements a modified version of the Modbus RTU protocol to download the Evaporimeter memory.

Important note:

When connecting via modem, the following HMITalk properties

must be set:

- CommHoldRTSWhileTransmitting = True
- CommHoldRTSWhileReceiving = True

A minimum of 5000ms in the CommTimeout property is also recommended.

2.2. Supported devices

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

IG INSTRUMENTOS Evaporimeters

3. Command list

3.1. Download Evaporimeter Memory

Description of this command:

Reads Evaporimeter memory contents.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

15

Meaning of the DriverP0 parameter:

Evaporimeter address (1-255)

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

0 for direct connection. 1 for RS-485 connection. 2 for radio connection. 3 for modem connection.

Meaning of the DriverP3 parameter:

Number of retries for each request (usually 10) (0-100).

Meaning of the DriverP4 parameter:

Number of records in each request (usually 4) (1-48).

Meaning of the DriverP5 parameter:

Dialing timeout in seconds when using modem connection (P2=3).

Meaning of the DriverP6 parameter:

Dial string when using modem connection (P2=3).

Meaning of the DriverP7 parameter:

Initial pointer address (256-65531). If empty, the initial pointer address is read from a file whose name is formed by combining P9, the device address and the .pos extension. This file is automatically maintained by the driver.

Meaning of the DriverP8 parameter:

Update data logger date (0=No, 1=Yes)

Meaning of the DriverP9 parameter:

Local filename (with path) where memory contents are downloaded. The actual filename is formed by combining P9, the device address and the .txt extension. If starts with '@', p9 is assumed only as the path and memory.tmp and memory.pos are used.

Values that are returned:

- Value in PointValue (0) = YEAR IN EVAPORIMETER CLOCK (0-3)
- Value in PointValue (1) = MONTH IN EVAPORIMETER CLOCK (1-12)
- Value in PointValue (2) = DAY IN EVAPORIMETER CLOCK (1-31)
- Value in PointValue (3) = HOUR IN EVAPORIMETER CLOCK (0-23)
- Value in PointValue (4) = MINUTES IN EVAPORIMETER CLOCK (0-59)
- Value in PointValue (5) = SECONDS IN EVAPORIMETER CLOCK (0-59)
- Value in PointValue (6) = NUMBER OF RECORDS READ (1-13055)
- Value in PointValue (7) = MEMORYSTART (typically 256)
- Value in PointValue (8) = MEMORYEND (typically 65535)
- Value in PointValue (9) = NEXT MEMORYPOINTER (256 to 65535)
- Value in PointValue (10) = RECORDLENGTH (32 for this evaporimeter)
- Value in PointValue (11) = DEVICE ADDRESS
- Value in PointValue (12) = TOTAL DOWNLOAD TIME (SEC)
- Value in PointValue (13) = ERROR IN HEADER FLAG (0 or 1)
- Value in PointValue (14) = DOWNLOAD INTERRUPTED FLAG (0 or 1)
- Value in PointValue (15) = DATA LOGGER TYPE

RECORD FORMAT:

- 1) RECORD INDEX (1-13055)
- 2) YEAR (0-3)
- 3) MONTH (1-12)
- 4) DAY (1-31)
- 5) HOURS (0-23)
- 6) MINUTES (0-59)
- 7) EXTERNAL INPUT
- 8) SPARE-TANK ALARM LEVEL
- 9) RESERVED 1 (1 BIT)
- 10) RESERVED 2 (1 BIT)
- 11) EVAPORIMETER COUNTER (0-4095)
- 12) EVAPORATION PULSES (0-65535)
- 13) TANK-A TEMPERATURE (0-4095)
- 14) TANK-B TEMPERATURE (0-4095)
- 15) TANK-C TEMPERATURE (0-4095)
- 16) AMBIENT TEMPERATURE (0-4095)
- 17) GROUND TEMPERATURE (0-4095)
- 18) WIND DIRECTION (0-4095)
- 19) PULSES (0-16777216)
- 20) RADIATION (0-4095)
- 21) AMBIENT HUMIDITY (0-4095)
- 22) ATMOSPHERIC PRESSURE (0-4095)
- 23) BATTERY LEVEL (0-4095)
- 24) GROUND HUMIDITY (0-4095)
- 25) RESERVED 0 (0-4095)
- 26) RESERVED 1 (0-4095)

- 27) RESERVED 2 (0-4095)
- 28) RESERVED 3 (0-255)

4. Appendices

4.1. Error messages

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

This list does not include some error messages that can be returned by the activex component while attempting to establish a connection.

- [1005] DRIVER (Internal): Invalid driver stage
- [1206] DRIVER (System): Error opening file specified in P9
- [1300] PROTOCOL (Timeout): No answer
- [1307] PROTOCOL (Timeout): No answer when dialing
- [1421] PROTOCOL (Format): Negative acknowledge received from device
- [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
- [2116] CONFIG (NumValues): Invalid number of values (must be 16)
- [2123] CONFIG (NumValues): Invalid number of values (must be 37)
- [2125] CONFIG (NumValues): Invalid number of values (must be 4)
- [3022] CONFIG (P0): Invalid device address (1-255)
- [3509] CONFIG (P1): Invalid command (0 only)
- [4024] CONFIG (P2): Invalid block size (1-7)
- [4048] CONFIG (P2): Invalid connection mode (0 to 3 only)
- [4549] CONFIG (P3): Invalid number of retries (0-100)
- [5021] CONFIG (P4): Invalid number of records (1-48)
- [5504] CONFIG (P5): Invalid dialing timeout (5-180)
- [6005] CONFIG (P6): Dial string is empty
- [6503] CONFIG (P7): Hang-up string is empty
- [7004] CONFIG (P8): RTU modem string is empty
- [7005] CONFIG (P8): RTU modem string too long (max=63 chars)
- [7503] CONFIG (P9): Local filename undefined
- [8013] CONFIG (Remote): Acknowledge
- [8034] CONFIG (Remote): Busy (rejected message)
- [8138] CONFIG (Remote): Failure in associated device
- [8168] CONFIG (Remote): Illegal data address
- [8170] CONFIG (Remote): Illegal data value
- [8172] CONFIG (Remote): Illegal function
- [8347] CONFIG (Remote): Unknown error

4.2. Keywords list

The following list shows a set of words directly related to this driver.

"Evaporimeter, Evaporimeters, IG, INSTRUMENTOS".