

# Industrial communication solutions for Windows

## XIGEVAPO Driver Manual

*IG Instrumentos Evaporimeter Driver*

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Industrial communication drivers.

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## XIGEVAPO technical specifications

### General information

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

### Command list

#### Download Evaporimeter Memory

**Description of this command:**

Reads Evaporimeter memory contents.

**Methods used to run 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)

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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)

## Error messages

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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
- [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

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```
[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
```

## Supported devices

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

IG INSTRUMENTOS Evaporimeters

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