

XCVENETA Driver Manual

ClimaVeneta CVM300-3000 Protocol Driver



CVM2000-200 Units
CVM3000-300 Units



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 sold separately and it is NOT included with the unlimited licenses of TAS-HMITalk. 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 xcveneta.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.

Contact us if you are interested in the source-code for the xcveneta.tlk driver which is available in plain-C.

Refer to the following link to visit the xcveneta driver page at CPKSoft Engineering website:
<http://www.cpksoft.com/tabid/55/ProductID/23/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

XCVENETA driver allows you to connect with CLIMAVENETA CVM2000/3000 Unit Controllers using the serial protocol for CVM300-3000.

Required communication settings are 9600,E,8,1.

2.2. Supported devices

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

CLIMAVENETA CVM200-2000 Units

CLIMAVENETA CVM300-3000 Units

3. Command list

3.1. Unit On

Description of this command:

This command starts or stops a unit.

Type of data handled by this command:

Digital Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

1

Values that are sent:

Value in PointValue (0) = 0 to stop, 1 to start

3.2. Select Compressor

Description of this command:

This command selects or deselects a compressor.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

2

Meaning of the DriverP2 parameter:

Number of compressor to select or deselect (1-8)

Values that are sent:

Value in PointValue (0) = Ignored

3.3. Set Operating Mode

Description of this command:

This command sets the operating mode.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP2 parameter:

Operating mode:

- All Units except WRAN/R:

1 = COLD

2 = COLD&WARM

3 = WARM

4 = AUTO

8 = FREE COOLING

- WRAN/R only:

1 = SUMMER/COLD

2 = SUMMER/COLD&REC

3 = SUMMER/REC

4 = SUMMER/AUTO

5 = WINTER/WARM

6 = WINTER/REC

7 = WINTER/AUTO

Values that are sent:

Value in PointValue (0) = Ignored

3.4. Unit Status Request

Description of this command:

This command requests the status of a unit.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

6

Values that are returned:

Value in PointValue (0) = Unit Status:

0 = IDLE

1 = WORK

2 = CONF

3 = SHUTDOWN

4 = OFF

5 = REMOTE SHUTDOWN

6 = REMOTE OFF

7 = SERIAL SHUTDOWN

8 = SERIAL OFF

3.5. Operating Information Request

Description of this command:

This command requests information on the status of a unit thermoregulators.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

8

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

8

Values that are returned:

Value in PointValue (0) = Active cold output steps ($N_g=N_{cx}(N_p+1)$)

Value in PointValue (1) = Available cold output steps ($N_g=N_{cx}(N_p+1)$)

Value in PointValue (2) = Active warm output steps ($N_g=N_{cx}(N_p+1)$)

Value in PointValue (3) = Available warm output steps ($N_g=N_{cx}(N_p+1)$)

Value in PointValue (4) = Average compressor operating time (mins)

Value in PointValue (5) = Program status:

0 = IDLE

1 = WORK

2 = CONF

3 = SHUTDOWN

4 = OFF

5 = REMOTE SHUTDOWN

6 = REMOTE OFF
7 = SERIAL SHUTDOWN
8 = SERIAL OFF
Value in PointValue (6) = Availability of unit:
0 = Unit not available
1 = Unit available
Value in PointValue (7) = Operating mode:
1 = CHILLER
2 = CHILLER+RECOVERY or FREECOOLING
3 = HEAT PUMP
4 = AUTO

Important note:

Ng = Number of steps Nc = Number of compressors Np = Number of separation stages

3.6. Unit Alarm Status Request

Description of this command:

This command requests information on the status of a unit alarms, both active and awaiting reset.

Type of data handled by this command:

Digital Input

Number of points accepted by this command:

1-32

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

10

Values that are returned:ACTIVE ALARMS:

Value in PointValue (0) = (E000) Primary circuit antifreeze
Value in PointValue (1) = (E000) Secondary circuit antifreeze
Value in PointValue (2) = (E001) Mains voltage
Value in PointValue (3) = (E002) Mains frequency
Value in PointValue (4) = (E003) Primary circuit flow meter
Value in PointValue (5) = (E004) Secondary circuit flow meter
Value in PointValue (6) = (E401) Primary circuit temperature input probe error
Value in PointValue (7) = (E4xx) Primary circuit temperature output probe error
Value in PointValue (8) = (E4xx) Secondary circuit temperature input probe error
Value in PointValue (9) = (E4xx) Secondary circuit temperature output probe error
Value in PointValue (10) = (Exxx) Free cooling temperature probe error
Value in PointValue (11) = (E035) CVM Master/Manager disconnected
Value in PointValue (12) = (E036) Keyboard disconnected

Value in PointValue (13) = (E005/E006) Chiller/hp switching temperature error
Value in PointValue (14) = (E007/E008) Input temperature error
Value in PointValue (15) = (E020) Configuration error
ALARMS AWAITING RESET:
Value in PointValue (16) = (E000) Primary circuit antifreeze
Value in PointValue (17) = (E000) Secondary circuit antifreeze
Value in PointValue (18) = (E001) Mains voltage
Value in PointValue (19) = (E002) Mains frequency
Value in PointValue (20) = (E003) Primary circuit flow meter
Value in PointValue (21) = (E004) Secondary circuit flow meter
Value in PointValue (22) = (E401) Primary circuit temperature input probe error
Value in PointValue (23) = (E4xx) Primary circuit temperature output probe error
Value in PointValue (24) = (E4xx) Secondary circuit temperature input probe error
Value in PointValue (25) = (E4xx) Secondary circuit temperature output probe error
Value in PointValue (26) = (Exxx) Free cooling temperature probe error
Value in PointValue (27) = (E035) CVM Master/Manager disconnected
Value in PointValue (28) = (E036) Keyboard disconnected
Value in PointValue (29) = (E005/E006) Chiller/hp switching temperature error
Value in PointValue (30) = (E007/E008) Input temperature error
Value in PointValue (31) = (E020) Configuration error

3.7. Circuit and Compressor Alarms Status Request

Description of this command:

This command requests information on the status of the circuit and compressor alarms, both active and awaiting reset.

Type of data handled by this command:

Digital Input

Number of points accepted by this command:

1-328 (41xNumber of compressors)

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

12

Values that are returned:

(FOLLOWING BLOCK REPEATS FOR EACH COMPRESSOR PRESENT)

Value in PointValue (0) = Compressor is present (1=Yes, 0=No)

ACTIVE CIRCUIT ALARMS:

Value in PointValue (1) = (E213) Minimum pressure

Value in PointValue (2) = (E201) Maximum pressure

Value in PointValue (3) = (E203) Pump-down

Value in PointValue (4) = (E208) Defrost probe fault

Value in PointValue (5) = (E207) Maximum pressure probe fault

Value in PointValue (6) = (E206) Minimum pressure probe fault

Value in PointValue (7) = (E202) Fans overload cut-out

Value in PointValue (8) = (E211) Defrost timeout

CIRCUIT ALARMS AWAITING RESET:

Value in PointValue (9) = (E213) Minimum pressure

Value in PointValue (10) = (E201) Maximum pressure

Value in PointValue (11) = (E203) Pump-down

Value in PointValue (12) = (E208) Defrost probe fault

Value in PointValue (13) = (E207) Maximum pressure probe fault

Value in PointValue (14) = (E206) Minimum pressure probe fault

Value in PointValue (15) = (E202) Fans overload cut-out

Value in PointValue (16) = (E211) Defrost timeout

ACTIVE COMPRESSOR ALARMS:

Value in PointValue (17) = (E101) Oil pressure

Value in PointValue (18) = (E103) Overload cut-out

Value in PointValue (19) = (E116) Maximum pressure switch

Value in PointValue (20) = (E102) Drain temperature

Value in PointValue (21) = (E107) Drain probe fault

Value in PointValue (22) = (E106) Oil pressure probe fault

COMPRESSOR ALARMS AWAITING RESET:

Value in PointValue (23) = (E101) Oil pressure

Value in PointValue (24) = (E103) Overload cut-out

Value in PointValue (25) = (E116) Maximum pressure switch

Value in PointValue (26) = (E102) Drain temperature

Value in PointValue (27) = (E107) Drain probe fault

Value in PointValue (28) = (E106) Oil pressure probe fault

OTHER:

Value in PointValue (29) = Compressor selection

Value in PointValue (30) = On/off status of compressor

SEPARATION STAGES:

Value in PointValue (31) = No separation stage

Value in PointValue (32) = Entire compressor with one separation stage per compressor

Value in PointValue (33) = One separation stage active with one separation stage per compressor

Value in PointValue (34) = Entire compressor with two separation stages per compressor

Value in PointValue (35) = One separation stages active with two separation stages per compressor

Value in PointValue (36) = Two separation stages active with two separation stages per compressor

Value in PointValue (37) = Entire compressor with three separation stages per compressor

Value in PointValue (38) = One separation stages active with three separation stages per compressor

Value in PointValue (39) = Two separation stages active with three separation stages per compressor

Value in PointValue (40) = Three separation stages active with three separation stages per compressor

3.8. Analogue Variable Request

Description of this command:

This command requests the value of the first or subsequent analogue variables.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-7

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

18

Meaning of the DriverP2 parameter:

1 to read first analogue variable.
0 to read subsequent analogue variable.

Values that are returned:

Value in PointValue (0) = Temperature probe (1=Yes, 0=No)
Value in PointValue (1) = Pressure probe (1=Yes, 0=No)
Value in PointValue (2) = Probe exists (1=Yes, 0=No)
Value in PointValue (3) = Probe error (1=Yes, 0=No)
Value in PointValue (4) = Probe number
Value in PointValue (5) = Probe value
Value in PointValue (6) = Unit of measure

3.9. Configuration Diagnostics Request

Description of this command:

This command requests the unit configuration information in order to analyze its coherence with the configuration set by the supervision system.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-4

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

20

Values that are returned:

Value in PointValue (0) = Type of unit:

1 = Chiller

2 = Chiller with heat recovery

3 = Heat pump with defrost feature

3 = Water-water pump

4 = WRAQ

5 = Chiller with free-cooling feature

Value in PointValue (1) = Number of circuits

Value in PointValue (2) = Number of compressors per circuit

Value in PointValue (3) = Number of separation stages per compressor

3.10. Temperature Setpoints Request

Description of this command:

This command requests the temperature setpoints for the unit thermoregulators.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

22

Values that are returned:

Value in PointValue (0) = Cold setpoint (in tenths of Celsius degree)

Value in PointValue (1) = Cold delta (in tenths of Celsius degree)

Value in PointValue (2) = Warm setpoint (in tenths of Celsius degree)

Value in PointValue (3) = Warm delta (in tenths of Celsius degree)

Value in PointValue (4) = Antifreeze setpoint (in tenths of Celsius degree)

3.11. Set Temperature Setpoints

Description of this command:

This command sets the temperature setpoints for the unit thermoregulators.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

5

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

24

Values that are sent:

Value in PointValue (0) = Cold setpoint (in tenths of Celsius degree)

Value in PointValue (1) = Cold delta (in tenths of Celsius degree)

Value in PointValue (2) = Warm setpoint (in tenths of Celsius degree)

Value in PointValue (3) = Warm delta (in tenths of Celsius degree)

Value in PointValue (4) = Antifreeze setpoint (in tenths of Celsius degree)

Important note:

The controller only accepts values within the configuration range.

3.12. Set Limitation in Thermoregulator Resources

Description of this command:

This command sets the maximum number of compressors used for temperature adjustment. If the unit uses compressors with separation stages, the number of compressors used is not necessarily limited to the value set by this parameter. The unit controller, in fact, may activate more compressors with separation stages in order to respect the optimisation algorithms used to adjust the unit.

Example: In a unit with four compressors and one separation stage per compressor, if the number of resources is limited

to two, the following combinations can be used:

1 = Two compressors without separation stages on

2 = One compressor without separation stages on plus two compressors with separation stages on

3 = Four compressors with separation stages on

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

26

Meaning of the DriverP2 parameter:

Maximum number of usable resources

Values that are sent:

Value in PointValue (0) = Ignored

3.13. Compressor Hours Request

Description of this command:

This command requests the working hours of a compressor, expressed in minutes.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

27

Meaning of the DriverP2 parameter:

Number of compressor (1-8)

Values that are returned:

Value in PointValue (0) = Working hours, in minutes

3.14. Compressor Stop Command

Description of this command:

This command stops a compressor following the pump-down procedure, if enabled.

Type of data handled by this command:

Digital Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit slave address (11-18)

Meaning of the DriverP1 parameter:

44

Meaning of the DriverP2 parameter:

Number of compressor (1-8)

Values that are sent:

Value in PointValue (0) = Ignored

ATTENTION:

This command is available in the following EPROM versions:

- MSK36_08 for CVM2000
- MSK14_22 for CVM200/300
- MSK19_12 for CVM3000

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
- [1103] DRIVER (Port): Error reading current port status
- [1104] DRIVER (Port): Error writing port settings
- [1300] PROTOCOL (Timeout): No answer
- [1415] PROTOCOL (Format): Invalid response format
- [1433] PROTOCOL (Format): Validation error in device response
- [2112] CONFIG (NumValues): Invalid number of channels (must be 8)
- [2127] CONFIG (NumValues): Invalid number of values (must be 5)
- [2139] CONFIG (NumValues): Only one bit can be written with this command
- [2142] CONFIG (NumValues): Only one output allowed
- [2150] CONFIG (NumValues): Only value can be requested
- [2209] CONFIG (NumValues): Too many values (max=32)
- [2216] CONFIG (NumValues): Too many values (max=4)
- [2223] CONFIG (NumValues): Too many values (max=5)
- [2232] CONFIG (NumValues): Too many values (max=7)
- [2287] CONFIG (NumValues): Too many values (max=328)
- [3052] CONFIG (P0): Invalid destination address (11-18)
- [3508] CONFIG (P1): Invalid command
- [4132] CONFIG (P2): Invalid setting
- [4137] CONFIG (P2): Invalid compressor number (1-8)

4.2. Keywords list

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

"CLIMAVENETA, CVM200-2000, CVM300-3000, Units".