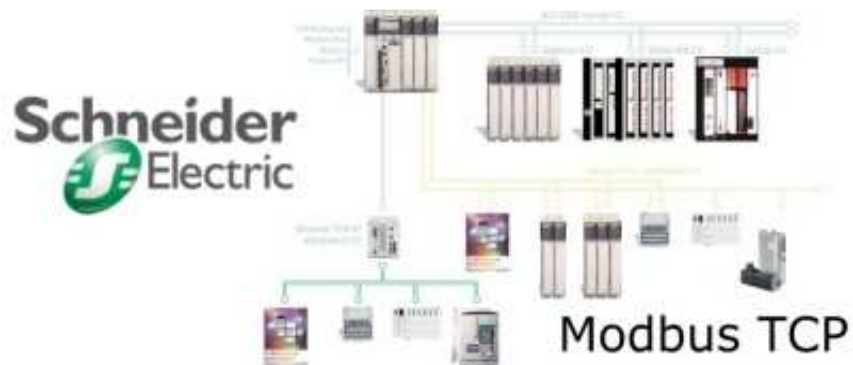


XMODBTCP Driver Manual

Modbus TCP Protocol Driver



CPKSoft Engineering

Process Monitoring and Industrial Automation Software

Copyright 1990-2008, CPKSoft Engineering. All rights reserved.

Index

1.	Introduction	3
2.	Driver details	4
2.1.	Driver overview	4
2.2.	Supported devices.....	4
3.	Command list	9
3.1.	Read Coil Status	9
3.2.	Read Input Status.....	9
3.3.	Read Holding Registers as Unsigned 16-bit Integers	10
3.4.	Read Holding Registers as Signed 16-bit Integers	10
3.5.	Read Holding Registers as Unsigned 32-bit Integers	11
3.6.	Read Holding Registers as Signed 32-bit Integers	12
3.7.	Read Holding Registers as Unsigned 32-bit Integers (words reversed)	12
3.8.	Read Holding Registers as Signed 32-bit Integers (words reversed).....	13
3.9.	Read Holding Registers as IEEE Floats	13
3.10.	Read Holding Registers as IEEE Floats (bytes reversed).....	14
3.11.	Read Holding Registers as IEEE Floats (words reversed).....	15
3.12.	Read Input Registers as Unsigned 16-bit Integers.....	15
3.13.	Read Input Registers as Signed 16-bit Integers.....	16
3.14.	Read Input Registers as Unsigned 32-bit Integers.....	16
3.15.	Read Input Registers as Signed 32-bit Integers.....	17
3.16.	Read Input Registers as Unsigned 32-bit Integers (words reversed).....	18
3.17.	Read Input Registers as Signed 32-bit Integers (words reversed).....	18
3.18.	Read Input Registers as IEEE Floats.....	19
3.19.	Read Input Registers as IEEE Floats (bytes reversed).....	19
3.20.	Read Input Registers as IEEE Floats (words reversed)	20
3.21.	Force Single Coil.....	21
3.22.	Force Multiple Coils.....	21
3.23.	Preset Single Register as Unsigned 16-bit Integer.....	22
3.24.	Preset Multiple Registers as Unsigned 16-bit Integers	22
3.25.	Preset Multiple Registers as Unsigned 32-bit Integers	23
3.26.	Preset Multiple Registers as Signed 32-bit Integers	24
3.27.	Preset Multiple Registers as Unsigned 32-bit Integers (words reversed)	24
3.28.	Preset Multiple Registers as Signed 32-bit Integers (words reversed)	25
3.29.	Preset Multiple Registers as IEEE Floats	25
3.30.	Preset Multiple Registers as IEEE Floats (bytes reversed).....	26
3.31.	Preset Multiple Registers as IEEE Floats (words reversed)	27
4.	Appendices	28
4.1.	Error messages	28
4.2.	Keywords list.....	28

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 xmodbtcp.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 xmodbtcp.tlk driver is available in plain-C language for additional USD 199 if you own a license of TAS-HMITalk 8.04 or higher.

Refer to the following link to visit the xmodbtcp driver page at CPKSoft Engineering website: <http://www.cpksoft.com/tabid/55/ProductID/67/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

XMODBTCP driver supports the Modbus TCP protocol according to the Modbus Messaging TCP/IP Implementation Guide from Modbus.org Rev 1.0, 8 May 02

This driver implements Modbus commands 1, 2, 3, 4, 5, 6, 15 and 16. It also implements some special commands that are not part of the original Modbus specification that bring support for special data formats used by certain devices.

This driver expects that you connect to your device through its tcp/ip port. The device should behave as a slave in your RS-232/485 network. TCP/IP communication must be set in TCP mode using port 502.

TESTING WITH MODSIM:

If you are using MODSIM Modbus slave emulation software to test this driver, then use command 'Read Input Registers as Unsigned 16-bit Integers' (P1=4) to read 'Inputs Register' from ModSim. Also, set the register address to 0 (P2=0) if you want to read Input Register 1 from ModSim.

2.2. Supported devices

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

- ABB Totalflow μ FLO 6213
- ABB Totalflow XRC 6490 RTU
- ABB Totalflow XRC 6790 RTU
- ABB Totalflow XRC 6890 RTU
- ABB Totalflow 8000/8100 Btu/CV Transmitter
- ABB Totalflow XFC 6410 EFM
- ABB Totalflow XFC 6413 EFM
- ABB Totalflow XFC 6713 EFM
- ABB S4C+ Robot Controller Controller
- ACKSYS Communications & Systems COMETH Network Gateway
- ACKSYS Communications & Systems WL-ABOARD/N Network Gateway
- ACKSYS Communications & Systems WL-ABOARD/S Network Gateway
- ACKSYS Communications & Systems WL-COMETH Network Gateway
- ACROMAG 901MB-0900 Discrete Input Module
- ACROMAG 902MB-0900 Discrete Output Module
- ACROMAG 903MB-0900 Discrete I/O Modules
- ACROMAG 904MB Discrete Input Module
- ACROMAG 905MB Discrete Output Module
- ACROMAG 906MB Discrete I/O Module
- ACROMAG 913MB Analog Input Module
- ACROMAG 914MB Analog Input Module

ACROMAG 917MB Analog Output Module
ACROMAG 918MB Analog Output Module
ACROMAG 924MB Analog Input Module
ACROMAG 932MB Analog Input Module
ACROMAG 934MB Analog Input Module
ACROMAG 942MB Frequency/Pulse Counter Module
ACROMAG BusWorks 900EN Ethernet I/O Modules
ACTL eWON2001 Network Gateway
ADFWEB.COM SRL Datalogger Modbus RTU
ADVANTAGE ENGINEERING Sentra 300 Controller
ADVANTECH ADAM-5510EKW/TP Controller
ALERTON FLG-Modbus BACtalk Gateway
AMASS Data Technologies Inc Analog to Digital Conversion Module
AMASS Data Technologies Inc Embedded Control Digital I/O Module
AMASS Data Technologies Inc PSE/RTU Shaft Encoder Sensor
ANTX Inc Elite Gas Controller
APEX Automation Technologies GmbH PDnetIP-Controller
AQUASENSORS LLC
AQUASENSORS LLC DataStick System Sensor
ARCOM HtMux Network Gateway
ARCOM HtNode Network Gateway
AREVA T&D BiTRONICS M871
AUMA Riestler GmbH & Co KG AUMATIC AC/DC Drive Control
BACHMANN ELECTRONIC M1 (M200 series) Controller
BARIX AG Barix IO12 I/O Module
BARIX AG Barix R6 I/O Interface
BARIX AG Barix X8 I/O Interface
BARNETT ENGINEERING Ltd ProTalk SPX Monitoring Hardware
BECKHOFF Modbus Bus Terminal Controller BC7300 Controller
BELUK Capacitor-Protecting Relay KSR Sensor
BELUK EMM Power Analyzer Monitoring Hardware
BELUK Power Factor Control Relay BLR-CM
BENITEK SYSTEMS SMX-900 Modem
BIHL WIEDEMANN AS-i/Modbus Gateway
COMET SYSTEM SRO Ethernet Sensor
CONTROL MYCROSYSTEMS SCADAPack Controller
CONTROL TECHNIQUES Commander SE AC Vector Drive Control
CONTROL TECHNIQUES Commander SK AC/DC Drive Control
CONTROL TECHNIQUES Commander SX AC/DC Drive Control
CONTROL TECHNIQUES Epsilon Digital Servo AC/DC Drive Control
CONTROL TECHNIQUES MDS Modular Servo AC/DC Drive Control
Control Techniques Inc EN Servo Drive AC/DC Drive Control
CONTROL TECHNIQUES Unidrive SP AC/DC Drive Control
CONTROL TECHNIQUES. Mentor II DC AC/DC Drive Control
CONTROL TECHNIQUES. Quantum III DC AC/DC Drive Control
DAE Instrument SIO270 I/O Module
DANIEL Measurement and Control Model 3804 Liquid Ultrasonic Flow Meter Sensor
DATAFORTH Corporation isoLynx SLX200 Data Acquisition System
DATANAB LLC BarioNet Controller

DATAQ Instruments Inc DI-900MB Modules
DELTA COMPUTER SYSTEMS RMC70 Series One- and Two-Axis Motion Controllers
DGH CORPORATION D1000M single-channel data acquisition modules
DGH CORPORATION D5000M Four Analog Input Modules
DGH CORPORATION DIN-100 Series I/O
ENDRESS HAUSER Flowtec AG Promag 53 Electromagnetic Flowmeter
ENDRESS HAUSER Flowtec AG Promass 83 Coriolis Flowmeter
EPRODUCTION SOLUTIONS Axxess 2.4 GHz Gateway Sensor Receiver
EQUUSTEK SOLUTIONS DL2000-CMX Network Gateway
EQUUSTEK SOLUTIONS DL3500 Network Gateway
EQUUSTEK SOLUTIONS DL4000-DMX DF1 Network Gateway
EQUUSTEK SOLUTIONS DL4000-MMX Network Gateway
EQUUSTEK SOLUTIONS DL4500-MEDH+ Network Gateway
EQUUSTEK SOLUTIONS DL4500-MEDH-485 Network Gateway
EUROTHERM 2500 Intelligent Data Acquisition and Precision Multi-Loop PID Control
EXEMYS LLC MODBUS Serial Server Network Gateway
FLOWERVE CORPORATION Valtek Logix 2000 Digital Positioner Controller
FLUENTA FGM
FRABA POSITAL Absolute Rotary Encoder Series OCD-EM
GALIL Motion Control IOC-7007 I/O Controller
GSE Scale Systems Indicator 460 Series
GSE Scale Systems Indicator 560 Series
GSE Scale Systems Indicator 660 Series
HACH COMPANY MOD I/O Modbus Interface
HACH COMPANY sc1000 Multi-parameter Universal Controller
HONEYWELL INTERNATIONAL Herculine Smart Actuators
ICP DAS USA M-7000 Series Controllers
INDUSTRIAL SCIENTIFIC CORPORATION 4800 Controller
INSTROMET
PRECISION DIGITAL CORPORATION Model PD865 Snooper RTU
PRECISION DIGITAL CORPORATION PD500 Series Controller
PROSOFT TECHNOLOGY MV156-MCM I/O Interface
PROSOFT TECHNOLOGY MVI56-MCMR Network Gateway
PROSOFT TECHNOLOGY MVI56-MNET Network Gateway
ROXAR RFM
SCHNEIDER ELECTRIC Advantys OTB Network Interface Module OTB 1E0 DM9LP
SCHNEIDER ELECTRIC Advantys STB Network Interface Module
SCHNEIDER ELECTRIC Altistart 48 Soft Starters Controller
SCHNEIDER ELECTRIC Altivar Speed Drives ATV 58
SCHNEIDER ELECTRIC Altivar Speed Drives ATV31
SCHNEIDER ELECTRIC Altivar Speed Drives ATV38
SCHNEIDER ELECTRIC Altivar Speed Drives ATV68
SCHNEIDER ELECTRIC Altivar Speed Drives ATV71H
SCHNEIDER ELECTRIC ASi Communications Gateways
SCHNEIDER ELECTRIC Atrium PL7 Processors
SCHNEIDER ELECTRIC Atrium Unity Processors TSX PCI 57
SCHNEIDER ELECTRIC Carriere Digital 600 Retrofit Trip Relay
SCHNEIDER ELECTRIC ConneXium Communications Gateways
SCHNEIDER ELECTRIC DeviceNet Modbus Communication Gateways

SCHNEIDER ELECTRIC Easergy Substation Control Unit Controller
SCHNEIDER ELECTRIC Fipio Modbus Communications Gateways
SCHNEIDER ELECTRIC Inductel Inductive Identification System XGK-S1.0421
SCHNEIDER ELECTRIC Inductel Inductive Identification System XGKS1715503
SCHNEIDER ELECTRIC LT6 Motor Control
SCHNEIDER ELECTRIC MASTERPACT Circuit Breaker
SCHNEIDER ELECTRIC Micro Communications Modules TSX ETZ 410
SCHNEIDER ELECTRIC Micro Communications Modules TSX ETZ 510
SCHNEIDER ELECTRIC Micro PL7 Processors
SCHNEIDER ELECTRIC Momentum M1 PLC Processor Controller
SCHNEIDER ELECTRIC Momentum M1E PLC Processor Controller
SCHNEIDER ELECTRIC PM500 Power Meter
SCHNEIDER ELECTRIC PM800 Power Meter
SCHNEIDER ELECTRIC PM9 Power Meter
SCHNEIDER ELECTRIC Power Logic Circuit Monitor CM3000
SCHNEIDER ELECTRIC Power Logic Circuit Monitor CM4000
SCHNEIDER ELECTRIC Premium Communications Modules TSX ETY 410
SCHNEIDER ELECTRIC Premium Communications Modules TSX ETY 510
SCHNEIDER ELECTRIC Premium family CPU module P571634
SCHNEIDER ELECTRIC Premium family CPU module P573634
SCHNEIDER ELECTRIC Premium family CPU module P574634
SCHNEIDER ELECTRIC Premium family CPU module P575634
SCHNEIDER ELECTRIC Premium PL7 TSX 57
SCHNEIDER ELECTRIC Premium Unity Processors TSX P57
SCHNEIDER ELECTRIC Preventa safety controllers Controller
SCHNEIDER ELECTRIC Profibus DP Modbus Communications Gateways
SCHNEIDER ELECTRIC Quantum Communications Modules 140 NOE 771 0
SCHNEIDER ELECTRIC Quantum Communications Modules 140 NOE 771 1X
SCHNEIDER ELECTRIC Quantum Concept Processors
SCHNEIDER ELECTRIC Quantum family CPU module CPU65160
SCHNEIDER ELECTRIC Quantum Unity Processors
SCHNEIDER ELECTRIC SEPAM 20 Protection Relays
SCHNEIDER ELECTRIC SEPAM 2000 Protection Relays
SCHNEIDER ELECTRIC SEPAM 40 Protection Relays
SCHNEIDER ELECTRIC SEPAM 80 Protection Relays
SCHNEIDER ELECTRIC Tesys U Motor Control and Protection Units Controller
Schneider Electric TSX 37 Controllers
SCHNEIDER ELECTRIC Twido Programmable Controllers
SCHNEIDER ELECTRIC Varlogic Power Factor Controller
SCHNEIDER ELECTRIC Vigilohm Insulation Monitor
SCHNEIDER ELECTRIC Vision System
SCHNEIDER ELECTRIC Zelio Smart Relays
SEALEVEL SYSTEMS SeaI/O-410 I/O Module
SEALEVEL SYSTEMS SeaI/O-420 I/O Module
SEALEVEL SYSTEMS SeaI/O-430 I/O Module
SEALEVEL SYSTEMS SeaI/O-440 I/O Module
SEALEVEL SYSTEMS SeaI/O-450 I/O Module
SEALEVEL SYSTEMS SeaI/O-462 I/O Module
SEALEVEL SYSTEMS SeaI/O-463 I/O Module

SEEKIRK A1700 Annunciator
STANLEY ASSEMBLY TECHNOLOGIES QPM Sigma Controller Q3000
WEED INSTRUMENT (EoTec) Modbus Remote I/O Electrical Interface

3. Command list

3.1. Read Coil Status

Description of this command:

Obtains current status (ON/OFF) in a group of logic coils. This command implements Modbus function 1.

Type of data handled by this command:

Digital Input

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

1

Meaning of the DriverP2 parameter:

Indicates the starting coil address.

Values that are returned:

Value in PointValue (0) = First coil status (0=OFF, 1=ON)
Value in PointValue (1) = Second coil status (0=OFF, 1=ON)
...
Value in PointValue (n-1) = Last coil status (0=OFF, 1=ON)

3.2. Read Input Status

Description of this command:

Obtains current status (ON/OFF) in a group of discrete inputs. This command implements Modbus function 2.

Type of data handled by this command:

Digital Input

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

2

Meaning of the DriverP2 parameter:

Indicates the starting input address.

Values that are returned:

Value in PointValue (0) = First input status (0=OFF, 1=ON)

Value in PointValue (1) = Second input status (0=OFF, 1=ON)

...

Value in PointValue (n-1) = Last input status (0=OFF, 1=ON)

3.3. Read Holding Registers as Unsigned 16-bit Integers

Description of this command:

Obtains the current values in one or more holding registers as unsigned 16-bit integers from 0 to 65535. This command implements Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-125

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

3

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value (0-65535)

Value in PointValue (1) = Second register value (0-65535)

...

Value in PointValue (n-1) = Last register value (0-65535)

3.4. Read Holding Registers as Signed 16-bit Integers

Description of this command:

Obtains the current values in one or more holding registers as signed 16-bit integers from -32768 to 32767. This command implements Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-125

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

74

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value (-32768 to 32767)

Value in PointValue (1) = Second register value (-32768 to 32767)

...

Value in PointValue (n-1) = Last register value (-32768 to 32767)

3.5. Read Holding Registers as Unsigned 32-bit Integers

Description of this command:

Obtains the current values in one or more holding registers as unsigned 32-bit integer numbers. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

76

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value

Value in PointValue (1) = Second register value

...

Value in PointValue (n-1) = Last register value

3.6. Read Holding Registers as Signed 32-bit Integers

Description of this command:

Obtains the current values in one or more holding registers as signed 32-bit integer numbers. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

75

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.7. Read Holding Registers as Unsigned 32-bit Integers (words reversed)

Description of this command:

Obtains current values in one or more holding registers as unsigned 32-bit integer numbers with words in reverse order. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

86

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.8. Read Holding Registers as Signed 32-bit Integers (words reversed)

Description of this command:

Obtains current values in one or more holding registers as signed 32-bit integer numbers with words in reverse order. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

85

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.9. Read Holding Registers as IEEE Floats

Description of this command:

Obtains the current values in one or more holding registers as 32-bit IEEE floating-point values. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

66

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.10. Read Holding Registers as IEEE Floats (bytes reversed)

Description of this command:

Obtains the current values in one or more holding registers as 32-bit IEEE floating-point values assuming that bytes are received in reverse order. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

68

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.11. Read Holding Registers as IEEE Floats (words reversed)

Description of this command:

Obtains current values in one or more holding registers as 32-bit IEEE floating point values assuming that the words order is received in reversed order. This command uses Modbus function 3.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

80

Meaning of the DriverP2 parameter:

Indicates the starting memory address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

Important note:

This command was added to support the floating-point format used by the TSX-3722 PLC from Telemecanique.

3.12. Read Input Registers as Unsigned 16-bit Integers

Description of this command:

Obtains the current values in one or more input registers as unsigned 16-bit integers from 0 to 65535. This command implements Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-125

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

4

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value (0-65535)

Value in PointValue (1) = Second register value (0-65535)

...

Value in PointValue (n-1) = Last register value (0-65535)

3.13. Read Input Registers as Signed 16-bit Integers

Description of this command:

Obtains the current values in one or more input registers as signed 16-bit integers from -32768 to 32767. This command implements Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-125

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

179

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value (-32768 to 32767)

Value in PointValue (1) = Second register value (-32768 to 32767)

...

Value in PointValue (n-1) = Last register value (-32768 to 32767)

3.14. Read Input Registers as Unsigned 32-bit Integers

Description of this command:

Obtains the current values in one or more input registers as unsigned 32-bit integer numbers. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

176

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.15. Read Input Registers as Signed 32-bit Integers

Description of this command:

Obtains the current values in one or more input registers as signed 32-bit integer numbers.
This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

175

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.16. Read Input Registers as Unsigned 32-bit Integers (words reversed)

Description of this command:

Obtains current values in one or more input registers as unsigned 32-bit integer numbers with words in reverse order. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

186

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.17. Read Input Registers as Signed 32-bit Integers (words reversed)

Description of this command:

Obtains current values in one or more input registers as signed 32-bit integer numbers with words in reverse order. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

185

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.18. Read Input Registers as IEEE Floats

Description of this command:

Obtains the current values in one or more input registers as 32-bit IEEE floating-point values. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

166

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.19. Read Input Registers as IEEE Floats (bytes reversed)

Description of this command:

Obtains the current values in one or more input registers as 32-bit IEEE floating-point values assuming that bytes are received in reverse order. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

168

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.20. Read Input Registers as IEEE Floats (words reversed)

Description of this command:

Obtains current values in one or more input registers as 32-bit IEEE floating point values assuming that the words order is received in reversed order. This command uses Modbus function 4.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station number (0-255).

Meaning of the DriverP1 parameter:

180

Meaning of the DriverP2 parameter:

Indicates the starting memory address.

Values that are returned:

Value in PointValue (0) = First register value
Value in PointValue (1) = Second register value
...
Value in PointValue (n-1) = Last register value

3.21. Force Single Coil

Description of this command:

Forces a single logic coil to a state ON or OFF. This command implements Modbus function 5.

Type of data handled by this command:

Digital Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP2 parameter:

Indicates the coil address.

Values that are sent:

Value in PointValue (0) = New coil status (0=OFF, 1=ON)

3.22. Force Multiple Coils

Description of this command:

Forces a series of consecutive logic coils to selected ON or OFF states. This command implements Modbus function 15.

Type of data handled by this command:

Digital Output

Number of points accepted by this command:

1-1000 (It is convenient for the groups to be a multiple of 8 elements)

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

15

Meaning of the DriverP2 parameter:

Indicates the starting coil address.

Values that are sent:

Value in PointValue (0) = New status for first coil (0=OFF, 1=ON)

Value in PointValue (1) = New status for second coil (0=OFF, 1=ON)

...

Value in PointValue (n-1) = New status for last coil (0=OFF, 1=ON)

3.23. Preset Single Register as Unsigned 16-bit Integer

Description of this command:

Places a specified value into a holding register as an unsigned 16-bit integer value from 0 to 65535. This command implements Modbus function 6.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

6

Meaning of the DriverP2 parameter:

Indicates the register address.

Values that are sent:

Value in PointValue (0) = New register value (0-65535)

3.24. Preset Multiple Registers as Unsigned 16-bit Integers

Description of this command:

Places specified values into a series of consecutive holding registers, as unsigned 16-bit integer values from 0 to 65535. This command implements Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-125

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

16

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register (0-65535)

Value in PointValue (1) = New value for second register (0-65535)

...

Value in PointValue (n-1) = New value for last register (0-65535)

3.25. Preset Multiple Registers as Unsigned 32-bit Integers

Description of this command:

Places specified values into a series of consecutive holding registers, as unsigned 32-bit integer values. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

78

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register

Value in PointValue (1) = New value for second register

...

Value in PointValue (n-1) = New value for last register

3.26. Preset Multiple Registers as Signed 32-bit Integers

Description of this command:

Places specified values into a series of consecutive holding registers, as signed 32-bit integer values. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

77

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register
...
Value in PointValue (n-1) = New value for last register

3.27. Preset Multiple Registers as Unsigned 32-bit Integers (words reversed)

Description of this command:

Places specified values into a series of consecutive holding registers, as unsigned 32-bit integer values with words in reverse order. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

88

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register
...
Value in PointValue (n-1) = New value for last register

3.28. Preset Multiple Registers as Signed 32-bit Integers (words reversed)

Description of this command:

Places specified values into a series of consecutive holding registers, as signed 32-bit integer values with words in reverse order. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

87

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register
...
Value in PointValue (n-1) = New value for last register

3.29. Preset Multiple Registers as IEEE Floats

Description of this command:

Places specified values into a series of consecutive holding registers as 32-bit IEEE floating point values. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

70

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register
...
Value in PointValue (n-1) = New value for last register

3.30. Preset Multiple Registers as IEEE Floats (bytes reversed)

Description of this command:

Places specified values into a series of consecutive holding registers as 32-bit IEEE floating point values where the bytes order is reversed. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

72

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register

...
Value in PointValue (n-1) = New value for last register

3.31. Preset Multiple Registers as IEEE Floats (words reversed)

Description of this command:

Places specified values into a series of consecutive holding registers as 32-bit IEEE floating point values where the required words order must be reversed. This command uses Modbus function 16.

Type of data handled by this command:

Analog Output

Number of points accepted by this command:

1-62

Meaning of the DriverP0 parameter:

Station Number (0-255). If the station number is 0, the command is sent as a broadcast message and no response is expected.

Meaning of the DriverP1 parameter:

81

Meaning of the DriverP2 parameter:

Indicates the starting register address.

Values that are sent:

Value in PointValue (0) = New value for first register
Value in PointValue (1) = New value for second register
...
Value in PointValue (n-1) = New value for last register

Important note:

This command was added to support the format used by the TSX-3722 PLC from Telemecanique.

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
- [1300] PROTOCOL (Timeout): No answer
- [1421] PROTOCOL (Format): Negative acknowledge received from device
- [1433] PROTOCOL (Format): Validation error in device response
- [1435] PROTOCOL (Format): Invalid transaction identifier received
- [2147] CONFIG (NumValues): Only one value can be read or written
- [2185] CONFIG (NumValues): Too many values (max=125)
- [2229] CONFIG (NumValues): Too many values (max=62)
- [3014] CONFIG (P0): Invalid device address (0-255)
- [3022] CONFIG (P0): Invalid device address (1-255)
- [3508] CONFIG (P1): Invalid command
- [4001] CONFIG (P2): Invalid address
- [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.

"μFLO, 140, 1E0, 2.4, 2000, 2500, 300, 3804, 410, 460, 4800, 510, 560, 600, 6213, 6410, 6413, 6490, 660, 6713, 6790, 6890, 771, 8000, 8100, 900EN, 901MB0900, 902MB0900, 903MB0900, 904MB, 905MB, 906MB, 913MB, 914MB, 917MB, 918MB, 924MB, 932MB, 934MB, 942MB, A1700, ABB, Absolute, AC, AC/DC, ACKSYS, Acquisition, Acqusion, ACROMAG, ACTL, Actuators, ADAM5510EKW/TP, ADFWEB.COM, ADVANTAGE, ADVANTECH, Advantys, AG, ALERTON, Altistart, Altivar, AMASS, Analog, Analyzer, Annunciator, ANTX, APEX, AQUASENSORS, ARCOM, AREVA, AS-i, ASi, ASSEMBLY, Atrium, ATV, ATV31, ATV38, ATV68, ATV71H, AUMA, AUMATIC, Automation, Axess, BACHMANN, BACtalk, BarioNet, BARIX, BARNETT, BC7300, BECKHOFF, BELUK, BENTEK, BIHL, BiTRONICS, BLR-CM, Breaker, Btu/CV, Bus, BusWorks, Capacitor-Protecting, Carriere, CM3000, CM4000, COMET,

COMETH, Commander, Communication, Communications, COMPANY, Concept, ConneXium, Control, ControlControl, Controller, Controllers, Conversion, Coriolis, Corporation, Counter, CPU, CPU65160, D1000M, D5000M, DAE, DANIEL, DAS, Data, DATAFORTH, Datalogger, DATANAB, DATAQ, DataStick, DC, DELTA, DeviceNet, DF1, DGH, DI900MB, DIN100, Discrete, DL2000CMX, DL3500, DL4000DMX, DL4000MMX, DL4500MEDH-485, DL4500MEDH+, DM9LP, DP, Drive, Drives, Easergy, EFM, ELECTRIC, Electrical, Electromagnetic, ELECTRONIC, Elite, Embedded, EMM, EN, Encoder, ENDRESS, ENGINEERING, ENGINEERING, EoTec, EPRODUCTION, Epsilon, EQUUSTEK, Ethernet, ETY, ETZ, EURO THERM, eWON2001, EXEMYS, Factor, FGM, Fipio, FLG-Modbus, Flow, Flowmeter, FLOWSERVE, Flowtec, FLUENTA, Four, FRABA, Frequency, GALIL, Gas, Gateway, Gateways, GHz, GSE, HACH, Hardware, HAUSER, Herculine, HONEYWELL, HtMux, HtNode, ICP, Identification, II, III, Indicator, Inductel, Inductive, INDUSTRIAL, INSTROMET, Instrument, Instruments, Insulation, Intelligent, Interface, INTERNATIONAL, IO12, IOC7007, isoLynx, KG, KSR, Liquid, LLC, Logic, Logix, LT6, Ltd, M1E, M200, M7000, M871, MASTERPACT, MDS, Measurement, Mentor, Meter, Micro, MOD, Modbus, Model, Modem, Modular, Modules, Momentum, Monitor, Monitoring, Mothion, Motion, Motor, Multi-Loop, Multi-parameter, MV156MCM, MVI56MCMR, MVI56MNET, MYCROSYSTEMS, Network, NOE, O410, O420, O430, O440, O450, O462, O463, OCD-EM, One-, OTB, P57, P571634, P573634, P574634, P575634, PCI, PD500, PD865, PDnetIP-Controller, PID, PL7, PLC, PM500, PM800, PM9, POSITAL, Positioner, Power, Precision, Premium, Preventa, Processor, Processors, Profibus, Programmable, Promag, Promass, PROSOFT, ProTalk, Protection, PSE, Pulse, Q3000, QPM, Quantum, Receiver, Relay, Relays, Remote, Retrofit, RFM, Riester, RMC70, Robot, Rotary, ROXAR, RTU, S4C+, safety, sc1000, SCADAPack, Scale, SCHNEIDER, SCIENTIFIC, SE, SeaI, SEALEVEL, SEEKIRK, Sensor, Sentra, SEPAM, Serial, series, Server, Servo, Shaft, Sigma, single-channel, SIO270, SK, SLX200, Smart, SMX900, Snooper, Soft, SOLUTIONS, SP, Speed, SPX, SRL, SRO, STANLEY, Starters, STB, Substation, SX, System, Systems, T&D, TCP, TECHNIQUES, TECHNIQUES., Technologies, TECHNOLOGY, Terminal, Tesys, Totalflow, Transmitter, Trip, TSX, Twido, Two-Axis, Ultrasonic, Unidrive, Unit, Units, Unity, Universal, USA, Valtek, Varlogic, Vector, Vigilohm, Vision, WEED, WIEDEMANN, WL-ABOARD/N, WL-ABOARD/S, WL-COMETH, XFC, XGK-S1.0421, XGKS1715503, XRC, Zelio".