

XGECALST Driver Manual

Gec Alsthom Addressable Relays IEC870 Protocol Driver


GEC ALSTHOM
KCGG140
KCEG140
KAVS100
(w/KITZ101)



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 xgecalst.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 xgecalst.tlk driver is available in plain-C language for additional USD 2999 if you own a license of TAS-HMITalk 8.04 or higher (this price is subject to change).

Refer to the following link to visit the xgecalst driver page at CPKSoft Engineering website: <http://www.cpksoft.com/tabid/55/ProductID/41/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

XGECALST driver was designed to communicate with GEC Alsthom addressable relays model KCGG140, KCEG140 and KAVS100, or any other compatible device that supports the Courier Protocol with the IEC870 interface to transport the courier messages.

Requires a KITZ connected to any free RS-232 port in your PC.

This driver supports Single-level Addressing mode only. Multi-level addressing may be implemented in future releases although it is only required when the topology of the network of courier devices is too complex.

Station numbers supported by this driver are 1 to 254. Automatic addressing allocation (station 0) and broadcast messages (station 255) are not available.

When communicating using 10 data bits mode, you must setup the driver to work with the following settings: N,8,1. When communicating using 11 data bits mode, you must setup the driver to work with the following settings: E,8,1.

Be sure your driver settings are matching the actual baud-rate used by the attached relays.

[Using KITZ101 Interface] If you are using a KITZ101 (KBUS to IEC870) Interface, be sure to use the appropriate option switch settings. A bad switch configuration can make connection with the relay impossible.

A standard option switch configuration when connecting the KITZ101 to a PC running TAS-HMITalk XGECALST driver is

as follows (assuming you are using 19200,N,8,1):

Option Switch 0 = 0 Option Switch 1 = 0 (Set to 1 for 57600 baudrate) Option Switch 2 = 1
Option Switch 3 = 1 (Set to 0 for E,8,1) Option Switch 4 = 0 (Never set to 1 because it will change the device's reply format) Option Switch 5 = 0 (Set to 1 only if you are using a modem!) Option Switch 6 = 0 Option Switch 7 = 0

Important note:

If you are using these switch settings and you are still unable to communicate, be sure you are addressing the requests to the right relay station number (defined in parameter HMITalk1.DriverP0) and check the pin assignment your cable is using.

2.2. Supported devices

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

GEC ALSTHOM Addressable Relays KCGG140
GEC ALSTHOM Addressable Relays KCEG140
GEC ALSTHOM Addressable Relays KAVS100

3. Command list

3.1. Read Relay Status

Description of this command:

- Gives the status of the Trip led, the Alarm led and the Out of Service flag present in the addressed relay.
- Gives the status of Circuit Breakers 1 and 2.
- Gives the status of Isolators 1 to 6.
- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input / Digital Input

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

- 0 = Ignore any pending events
- 1 = Read one event if present
- 2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = The current Trip Led Status (0 or 1)

Value in PointValue (1) = The current Alarm Led Status (0 or 1)

Value in PointValue (2) = The current Out of Service Status (0 or 1)

Value in PointValue (3) = Status of Circuit Breaker 1 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (4) = Status of Circuit Breaker 2 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (5) = Status of Isolator 1 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (6) = Status of Isolator 2 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (7) = Status of Isolator 3 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (8) = Status of Isolator 4 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (9) = Status of Isolator 5 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

Value in PointValue (10) = Status of Isolator 6 (0=OPEN, 1=CLOSED, -1/2=NOT FITTED)

3.2. Read Logic Control Inputs Status

Description of this command:

Gives the status of the logic control inputs.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input / Digital Input

Number of points accepted by this command:

1-8

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

1

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

- 0 = Ignore any pending events
- 1 = Read one event if present
- 2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

- Value in PointValue (0) = Status of logic control input #0
- Value in PointValue (1) = Status of logic control input #1
- Value in PointValue (2) = Status of logic control input #2
- Value in PointValue (3) = Status of logic control input #3
- Value in PointValue (4) = Status of logic control input #4
- Value in PointValue (5) = Status of logic control input #5
- Value in PointValue (6) = Status of logic control input #6
- Value in PointValue (7) = Status of logic control input #7

3.3. Read Outputs Status

Description of this command:

Gives the status of the outputs.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input / Digital Input

Number of points accepted by this command:

1-8

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

2

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = Status of output #0

Value in PointValue (1) = Status of output #1

Value in PointValue (2) = Status of output #2

Value in PointValue (3) = Status of output #3

Value in PointValue (4) = Status of output #4

Value in PointValue (5) = Status of output #5

Value in PointValue (6) = Status of output #6

Value in PointValue (7) = Status of output #7

3.4. Read Measured Values from KCGG140

Description of this command:

Returns a set of measured values from the KCGG140 relay. Refer to the RETURNS: section of this command for a list of measurements returned.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-27

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

3

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = Current in phase A (Ia), in amperes

Value in PointValue (1) = Current in phase B (Ib), in amperes

Value in PointValue (2) = Current in phase C (Ic), in amperes

Value in PointValue (3) = Current in phase N (Io), in amperes

Value in PointValue (4) = Frequency (F), in Hertz

Value in PointValue (5) = Number of relay operations (Sum(OPS))

Value in PointValue (6) = $\text{Sum}(Ia)^2$, in amperes²

Value in PointValue (7) = $\text{Sum}(Ib)^2$, in amperes²

Value in PointValue (8) = $\text{Sum}(Ic)^2$, in amperes²

Value in PointValue (9) = Last failure operation time, in minutes

Value in PointValue (10) = Status of logic control input 0

Value in PointValue (11) = Status of logic control input 1

Value in PointValue (12) = Status of logic control input 2
Value in PointValue (13) = Status of logic control input 3
Value in PointValue (14) = Status of logic control input 4
Value in PointValue (15) = Status of logic control input 5
Value in PointValue (16) = Status of logic control input 6
Value in PointValue (17) = Status of logic control input 7
Value in PointValue (18) = Status of output 0
Value in PointValue (19) = Status of output 1
Value in PointValue (20) = Status of output 2
Value in PointValue (21) = Status of output 3
Value in PointValue (22) = Status of output 4
Value in PointValue (23) = Status of output 5
Value in PointValue (24) = Status of output 6
Value in PointValue (25) = Status of output 7
Value in PointValue (26) = Status Byte: Bit 0: DIST Bit 1: PLANT Bit 2: CONTROL Bit 3:
BUSY Bit 4: OOS Bit 5: EVENT Bit 6: ALARM Bit 7: TRIP

3.5. Read Measured Values from KCEG140

Description of this command:

Returns a set of measured values from the KCEG140 relay. Refer to the RETURNS: section of this command for a list of measurements returned.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-39

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

4

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

- 0 = Ignore any pending events
- 1 = Read one event if present
- 2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

- Value in PointValue (0) = Current in phase A (Ia), in amperes
- Value in PointValue (1) = Current in phase B (Ib), in amperes
- Value in PointValue (2) = Current in phase C (Ic), in amperes
- Value in PointValue (3) = Current in phase N (Io), in amperes
- Value in PointValue (4) = Frequency (F), in Hertz
- Value in PointValue (5) = Number of relay operations (Sum(OPS))
- Value in PointValue (6) = $\text{Sum}(Ia)^2$, in amperes²
- Value in PointValue (7) = $\text{Sum}(Ib)^2$, in amperes²
- Value in PointValue (8) = $\text{Sum}(Ic)^2$, in amperes²
- Value in PointValue (9) = Last failure operation time, in minutes
- Value in PointValue (10) = Status of logic control input 0
- Value in PointValue (11) = Status of logic control input 1
- Value in PointValue (12) = Status of logic control input 2
- Value in PointValue (13) = Status of logic control input 3
- Value in PointValue (14) = Status of logic control input 4
- Value in PointValue (15) = Status of logic control input 5
- Value in PointValue (16) = Status of logic control input 6
- Value in PointValue (17) = Status of logic control input 7
- Value in PointValue (18) = Status of output 0
- Value in PointValue (19) = Status of output 1
- Value in PointValue (20) = Status of output 2
- Value in PointValue (21) = Status of output 3
- Value in PointValue (22) = Status of output 4
- Value in PointValue (23) = Status of output 5
- Value in PointValue (24) = Status of output 6
- Value in PointValue (25) = Status of output 7
- Value in PointValue (26) = Phase AB voltage (Vab), in Volts
- Value in PointValue (27) = Phase BC voltage (Vbc), in Volts
- Value in PointValue (28) = Phase CA voltage (Vca), in Volts
- Value in PointValue (29) = Phase A voltage (Va), in Volts
- Value in PointValue (30) = Phase B voltage (Vb), in Volts
- Value in PointValue (31) = Phase C voltage (Vc), in Volts
- Value in PointValue (32) = Zero sequence voltage (Vo), in Volts

Value in PointValue (33) = Power (W), in Watts
Value in PointValue (34) = VoltAmps (VA), in VA
Value in PointValue (35) = VoltAmps reactive (VAr), in wr
Value in PointValue (36) = Power Factor
Value in PointValue (37) = Operating mode
Value in PointValue (38) = Status Byte: Bit 0: DIST Bit 1: PLANT Bit 2: CONTROL Bit 3:
BUSY Bit 4: OOS Bit 5: EVENT Bit 6: ALARM Bit 7: TRIP

3.6. Read Measured Values from KCEG140 (reduced)

Description of this command:

Returns a reduced set of measured values from the KCEG140 relay. Refer to the RETURNS: section of this command for a list of measurements returned.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-30

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

40

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = Current in phase A (Ia), in amperes
Value in PointValue (1) = Current in phase B (Ib), in amperes
Value in PointValue (2) = Current in phase C (Ic), in amperes
Value in PointValue (3) = Current in phase N (Io), in amperes
Value in PointValue (4) = Frequency (F), in Hertz
Value in PointValue (5) = Status of logic control input 0
Value in PointValue (6) = Status of logic control input 1
Value in PointValue (7) = Status of logic control input 2
Value in PointValue (8) = Status of logic control input 3
Value in PointValue (9) = Status of logic control input 4
Value in PointValue (10) = Status of logic control input 5
Value in PointValue (11) = Status of logic control input 6
Value in PointValue (12) = Status of logic control input 7
Value in PointValue (13) = Status of output 0
Value in PointValue (14) = Status of output 1
Value in PointValue (15) = Status of output 2
Value in PointValue (16) = Status of output 3
Value in PointValue (17) = Status of output 4
Value in PointValue (18) = Status of output 5
Value in PointValue (19) = Status of output 6
Value in PointValue (20) = Status of output 7
Value in PointValue (21) = Phase AB voltage (Vab), in Volts
Value in PointValue (22) = Phase BC voltage (Vbc), in Volts
Value in PointValue (23) = Phase CA voltage (Vca), in Volts
Value in PointValue (24) = Zero sequence voltage (Vo), in Volts
Value in PointValue (25) = Power (W), in Watts
Value in PointValue (26) = VoltAmps (VA), in VA
Value in PointValue (27) = VoltAmps reactive (VAr), in wr
Value in PointValue (28) = Power Factor
Value in PointValue (29) = Status Byte: Bit 0: DIST Bit 1: PLANT Bit 2: CONTROL Bit 3: BUSY Bit 4: OOS Bit 5: EVENT Bit 6: ALARM Bit 7: TRIP

3.7. Read Measured Values from KAVS100

Description of this command:

Returns a set of measured values from the KAVS100 relay. Refer to the RETURNS: section of this command for a list of measurements returned.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-22

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = Line Voltage, in Volts

Value in PointValue (1) = Bus Voltage, in Volts

Value in PointValue (2) = Phase angle (between line and bus voltage), in Degrees

Value in PointValue (3) = Slip frequency, in Hertz

Value in PointValue (4) = System frequency (F), in Hertz

Value in PointValue (5) = Status of logic control input 0

Value in PointValue (6) = Status of logic control input 1

Value in PointValue (7) = Status of logic control input 2

Value in PointValue (8) = Status of logic control input 3
Value in PointValue (9) = Status of logic control input 4
Value in PointValue (10) = Status of logic control input 5
Value in PointValue (11) = Status of logic control input 6
Value in PointValue (12) = Status of logic control input 7
Value in PointValue (13) = Status of output 0
Value in PointValue (14) = Status of output 1
Value in PointValue (15) = Status of output 2
Value in PointValue (16) = Status of output 3
Value in PointValue (17) = Status of output 4
Value in PointValue (18) = Status of output 5
Value in PointValue (19) = Status of output 6
Value in PointValue (20) = Status of output 7
Value in PointValue (21) = Status Byte: Bit 0: DIST Bit 1: PLANT Bit 2: CONTROL Bit 3:
BUSY Bit 4: OOS Bit 5: EVENT Bit 6: ALARM Bit 7: TRIP

3.8. Read Cells with Courier Numeric Type (2CH)

Description of this command:

Returns a set of consecutive cell values that can be interpreted as Courier Numeric values.
All the cells read belong to the same row.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

20

Meaning of the DriverP2 parameter:

Indicates the starting row to be read (0-255).

Meaning of the DriverP3 parameter:

Indicates the starting column to be read (0-255).

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = First cell requested

Value in PointValue (1) = Second cell requested . .

Value in PointValue (n) = Last cell requested

3.9. Read Cells with Unsigned Integer Type (24H)

Description of this command:

Returns a set of consecutive cell values that can be interpreted as Unsigned Integers (24H). All the cells read belong to the same row.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

21

Meaning of the DriverP2 parameter:

Indicates the starting row to be read (0-255).

Meaning of the DriverP3 parameter:

Indicates the starting column to be read (0-255).

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

- 0 = Ignore any pending events
- 1 = Read one event if present
- 2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

- Value in PointValue (0) = First cell requested
- Value in PointValue (1) = Second cell requested . .
- Value in PointValue (n) = Last cell requested

3.10. Read Cells with Signed Integer Type (28H)

Description of this command:

Returns a set of consecutive cell values that can be interpreted as Signed Integers (28H). All the cells read belong to the same row.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

22

Meaning of the DriverP2 parameter:

Indicates the starting row to be read (0-255).

Meaning of the DriverP3 parameter:

Indicates the starting column to be read (0-255).

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = First cell requested

Value in PointValue (1) = Second cell requested . .

Value in PointValue (n) = Last cell requested

3.11. Read Cells with Binary Flags Type (20H)

Description of this command:

Returns a set of consecutive cell values that can be interpreted as Binary Flags (20H). All the cells read belong to the same row.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

23

Meaning of the DriverP2 parameter:

Indicates the starting row to be read (0-255).

Meaning of the DriverP3 parameter:

Indicates the starting column to be read (0-255).

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = First cell requested

Value in PointValue (1) = Second cell requested . .

Value in PointValue (n) = Last cell requested

3.12. Read Cells and return Individual Bytes

Description of this command:

Returns a set of bytes that are directly taken from the relay response when a given set of cells is requested. Use this command to manually interpret the device answer. Every byte in the answer will be returned as an individual PointValue(), including those bytes that act as delimiters or field length indicators. It is up to the user to filter the bytes actually containing the data and to build the final value they represent. All the cells read belong to the same row.

- Additionally, this command can extract any pending event if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the directory specified in HMITalk1.DriverP6.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

24

Meaning of the DriverP2 parameter:

Indicates the starting row to be read (0-255).

Meaning of the DriverP3 parameter:

Indicates the starting column to be read (0-255).

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP5 parameter:

Indicates how events extraction must be handled:

0 = Ignore any pending events

1 = Read one event if present

2 = Read all present events before continuing

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = First cell requested

Value in PointValue (1) = Second cell requested . .

Value in PointValue (n) = Last cell requested

3.13. Read Events

Description of this command:

This command will only extract any pending event, if it is available in the relay memory. The file 'RELAYxxx.EVN' will be used for that purpose, where xxx is the relay's unit address given by HMITalk1.DriverP0. It will be located in the current TAS-HMITalk directory.

Type of data handled by this command:

Analog Input

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

30

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

Values that are returned:

Value in PointValue (0) = Indicates how many events have been extracted since the last driver start-up.

3.14. Set Circuit Breaker Status

Description of this command:

Closes or trips the circuit breaker of the addressed relay.

Important note: For this command to work properly with this driver,

you must program your relay according to the following:

- In the Relay Mask Page: RLYCVCLOSE = 6 RLYCVTRIHMITalk1.DriverP = 7
- In the Input Mask Page: INPCVCLOSE = 6 INPCVOPEN = 7

Type of data handled by this command:

Digital Output

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-254).

Meaning of the DriverP1 parameter:

10

Meaning of the DriverP2 parameter:

Indicates the circuit breaker to be affected (1-7).

Meaning of the DriverP3 parameter:

Indicates how to perform the validation after sending the open/close command:

0 = The relay's reply is taken as the only validation to assume the command was executed properly.

1 = The status of the circuit breaker is checked immediately after sending an open/close command by performing a post-reading operation. If the circuit breaker does not match the expected status, the command will be retried indefinitely.

2 = The status of the circuit breaker is checked immediately after sending a close command by performing a post-reading operation. If the circuit breaker does not match the expected status, the command will be retried indefinitely ONLY if you were trying to CLOSE it.

3 = The status of the circuit breaker is checked immediately after sending an open command by performing a post-reading operation. If the circuit breaker does not match the expected status, the command will be retried indefinitely ONLY if you were trying to OPEN it.

Meaning of the DriverP4 parameter:

Indicates how many retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 1 to 30.

Meaning of the DriverP6 parameter:

Indicates the path where the event files reside. If this property is empty, C:\\GEC is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a retry command is attempted (poll buffer command).

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
- [1201] DRIVER (System): Error closing %s
- [1202] DRIVER (System): Error creating %s
- [1208] DRIVER (System): Error seeking end of %s
- [1210] DRIVER (System): Error writing to %s
- [1300] PROTOCOL (Timeout): No answer
- [1433] PROTOCOL (Format): Validation error in device response
- [2001] CONFIG (DataType): Analog outputs are not supported by this driver
- [2105] CONFIG (NumValues): Invalid number of cells requested (max=63)
- [3021] CONFIG (P0): Invalid device address (1-254)
- [3508] CONFIG (P1): Invalid command
- [3513] CONFIG (P1): Invalid command (0 to 5, 20 to 24 or 30)
- [3524] CONFIG (P1): Invalid command (10=set breaker, 11=set isolator)
- [3546] CONFIG (P1): Invalid command
- [4025] CONFIG (P2): Invalid breaker number (1-7)
- [4070] CONFIG (P2): Invalid isolator number (1-6)
- [4096] CONFIG (P2): Invalid row (0-255)
- [4518] CONFIG (P3): Invalid column (0-255)
- [4582] CONFIG (P3): Invalid validation mode (0-3)
- [5027] CONFIG (P4): Invalid number of retries when busy (1-30)
- [8094] CONFIG (Remote): Device answer is different than expected
- [8095] CONFIG (Remote): Device answer is different than expected in byte 13
- [8096] CONFIG (Remote): Device answer is different than expected in byte 15
- [8105] CONFIG (Remote): Device is not a KAVS100 relay (response is shorter than expected)
- [8106] CONFIG (Remote): Device is not a KCEG140 relay (response is shorter than expected)
- [8107] CONFIG (Remote): Device is not a KCGG140 relay (response is shorter than expected)
- [8116] CONFIG (Remote): Error closing circuit breaker
- [8118] CONFIG (Remote): Error closing isolator
- [8126] CONFIG (Remote): Error opening circuit breaker
- [8128] CONFIG (Remote): Error opening isolator
- [8236] CONFIG (Remote): Not in setting mode
- [8237] CONFIG (Remote): Not in setting mode (command invalid)
- [8243] CONFIG (Remote): One or more cells are not of BinaryFlags Type

- [8244] CONFIG (Remote): One or more cells are not of Courier Numeric Type
- [8245] CONFIG (Remote): One or more cells are not of Unsigned Integer Type
- [8262] CONFIG (Remote): Password is required to change setting
- [8302] CONFIG (Remote): Reported an unknown error
- [8310] CONFIG (Remote): Response is shorter than expected
- [8362] CONFIG (Remote): Verify error on setting change

4.2. Keywords list

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

"Addressable, ALSTHOM, GEC, IEC870, KAVS100, KCEG140, KCGG140, Relays".