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XALSTOM Driver Manual

Areva Alstom IEC 870 Courier Protocol Driver

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XALSTOM technical specifications

General information

XALSTOM driver was designed to communicate with Areva / Alstom / Gec Alsthom addressable relays that support the Courier protocol.

Some generic commands can be used with other Alstom equipment that support the Courier Protocol with the IEC870 interface to transport the courier messages.

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.

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 the XALSTOM driver is as follows (assuming that 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

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 DriverP0) and check the pin assignment that your cable is using.

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.

Using KITZ201 Interface:

If you are using a KITZ201 (KBUS to IEC870) Interface, use the Alstom configuration software to configure the communication parameters so they match those used by the connected relays.

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.

Use Port 2 located in the rear side of the KITZ to connect to the PC RS-232 port.

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 DriverP0) and check the pin assignment that your cable is using.

Command list

Generic Courier Commands

Abort Setting

Description of this command:

Requests the slave device to abandon a setting change operation. The purpose of this command is recover the relay from an uncompleted setting change operation in case of a communication error, after which the relay could remain in setting change mode, thus no longer receiving new setting change commands.

Methods used to run this command:

Digital Output (WriteBooleanValues)

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Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

1

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Enter Calibration Mode

Description of this command:

Puts the relay into calibration mode so it may be calibrated.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

4

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP6 parameter:

6-character password.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Enter Configuration Mode

Description of this command:

Puts the relay into configuration mode so it may be configured.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP6 parameter:

6-character password.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Enter Password

Description of this command:

Sets an ASCII password in a cell of type text. Use this command to enter the password in order to enable the writing of password-protected cells, as it is the case of setting the Record Number cell when reading Fault Records.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

2

Meaning of the DriverP2 parameter:

Indicates the cell row number (0-255), typically 2.

Meaning of the DriverP3 parameter:

Indicates the cell col number (0-255), typically 0.

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates how many Reset Menu Cell commands must be previously sent to the password cell.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

First ASCII password to be sent. If left empty, default is AAAA.

Meaning of the DriverP9 parameter:

Second ASCII password to be sent. If first password fails, second password is sent. If left empty, default is ZZZZ.

Values that are sent:

Value in PointValue (0) = This value is ignored since the text to be sent is configured in DriverP9.

Important note:

Password is case sensitive. Password in MICOM devices is typically located in cell 0002 (row=2 of column=0).

If you are entering a password, use the following values for P2 and P3:

- DriverP2 = 2
- DriverP3 = 0

Execute Setting

Description of this command:

Sends an Execute Setting command.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

3

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

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Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

*Exit Calibration Mode***Description of this command:**

Takes the device out of calibration mode and the device is reset.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

6

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP6 parameter:

6-character password.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Date string in the form 'DD/MM/YYHH:MM:SS'.

*Exit Configuration Mode***Description of this command:**

Takes the device out of configuration mode and the device is reset.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

7

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP6 parameter:

6-character password.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Date string in the form 'DD/MM/YYHH:MM:SS'.

*Get Cell Strings***Description of this command:**

Requests the slave device to send a list of strings for a menu cell's data value which are used to make the setting more comprehensible. The number of cell strings may vary depending of the cell being requested. Texts will be returned in the PointText array.

Methods used to run this command:

Analog Input (ReadNumericValues)

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Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

28

Meaning of the DriverP2 parameter:

Indicates the cell col number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Important note:

The number of cell strings returned will be limited to the amount set in DriverNumPoints. Each PointText will show each received string. Each PointValue will show the length of each received string. If the number of cell strings returned is less than DriverNumPoints, remaining point values will be set to -1 and the corresponding point texts will be left empty.

Values that are returned:

Text in PointText (0) = First string in the cell

Value in PointValue (0) = Length of first string in the cell

- ...

Text in PointText (DriverNumPoints-1) = Length of last string in the cell (see note above)

Value in PointValue (DriverNumPoints-1) = Last string in the cell (see note above)

Get Cell Values

Description of this command:

Requests the slave device to send a list of values (DTL_NUM, DTL_UNUS, DTL_INT or DTL_BINF) for a menu cell. The number of cell values may vary depending of the cell being requested.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

29

Meaning of the DriverP2 parameter:

Indicates the cell col number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the offset of the first value to be returned. If 0 or empty, the lists starts with the first available value. If 1, the list starts with the second available value, and so on.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Important note:

The number of cell strings returned will be limited to the amount set in DriverNumPoints. Each PointValue will show each received value. If the number of cell strings returned is less than DriverNumPoints, remaining point values will be set to -1.

Values that are returned:

Value in PointValue (0) = First value in the cell

Value in PointValue (1) = Second value in the cell

- ...

Value in PointValue (DriverNumPoints-1) = Last value in the cell

Get Column Headings

Description of this command:

Requests the slave device to send a list of all the column heading cells in its menu along with their text. The number of column headings may vary depending of the current state of the relay's database and whether various passwords and other settings have been entered. It should not be assumed to remain constant between successive readings. Texts will be returned in the PointText array.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

25

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the offset of the first heading to be returned. If 0 or empty, the lists starts with the first available heading. If 1, the list starts with the second available heading, and so on.

Meaning of the DriverP6 parameter:

Indicates how to fill non-existent headings: 0 or empty = Show existing headings only.
1 = Fill non-existent headings with empty texts and -1 values.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Important note:

The number of column numbers and column headings returned will be limited to the amount set in DriverNumPoints. If the number of columns present in the database is less than DriverNumPoints, remaining point values will be set to -1 and the corresponding point texts will be left empty.

Values that are returned:

Value in PointValue (0) = Number of first column in the database

Text in PointText (0) = Heading of first column in the database

- ...

Value in PointValue (DriverNumPoints-1) = Number of last column in the database (see note above)

Text in PointText (DriverNumPoints-1) = Heading of last column in the database (see note above)

Get Column Text

Description of this command:

Requests the slave device to send a list of the text for all the cells in a specified column in the database. First cell will be the column heading. When used in combination with Get Column Values, you should discard the first text received. The number of column cells may vary depending of the current state of the relay's database and whether various passwords and other settings have been entered. It should not be assumed to remain constant between successive readings. Texts will be returned in the PointText array.

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Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

26

Meaning of the DriverP2 parameter:

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

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the offset of the first cell to be returned. If 0 or empty, the lists starts with the first available text. If 1, the list starts with the second available text, and so on.

Meaning of the DriverP6 parameter:

Indicates how to fill non-existent cells: 0 or empty = Show existing cells only.
1 = Fill non-existent cells with empty texts and -1 values.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Important note:

The number of cell numbers and cell texts returned will be limited to the amount set in DriverNumPoints. If the number of cells present in the database is less than DriverNumPoints, remaining point values will be set to -1 and the corresponding point texts are left empty.

Values that are returned:

Value in PointValue (0) = Number of first cell in the specified column of the database
Text in PointText (0) = Heading of first column in the specified column of the database
- ...

Value in PointValue (DriverNumPoints-1) = Number of last cell in the specified column of the database (see note above)

Text in PointText (DriverNumPoints-1) = Heading of last cell in the specified column of the database (see note above)

Get Column Values

Description of this command:

Requests the slave device to send a list of the values for all the cells in a specified column in the database. Column heading has no value associated, so the number of values returned will be one less than the number of values returned by the Get Column Text command for the same column. The number of column cells may vary depending of the current state of the relay's database and whether various passwords and other settings have been entered. It should not be assumed to remain constant between successive readings. Values will be returned in the PointValue array, except when they need to be returned as texts (dates and flags). In this case, they will be returned in the PointText array, and the PointValue will be set to -1. This command can be used in combination with the Get Column Text command.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

27

Meaning of the DriverP2 parameter:

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

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:
0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

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1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the offset of the first cell to be returned. If 0 or empty, the lists starts with the first available value. If 1, the list starts with the second available value, and so on.

Meaning of the DriverP6 parameter:

Indicates how to fill non-existent cells and how to treat separator characters (19h) in cells of type text: 0 or empty = Show existing cells only and treat separator characters as end of text. 1 = Fill non-existent cells with empty texts and -1 values and treat separator characters (19h) as end of text. 0/ = Show existing cells only and replace separator characters (19h) with '/' (any other character can be used instead of '/') 1/ = Fill non-existent cells with empty texts and -1 values and replace separator characters (19h) with '/' (any other character can be used instead of '/')

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

If not empty, indicates a cell row where a value must be written as byte before the column is read (used to select a fault record for example).

Meaning of the DriverP9 parameter:

If not empty, indicates the value (0-255) to be written to the cell whose column is DriverP2 and whose row is DriverP8.

Important note:

The number of cell values returned will be limited to the amount set in DriverNumPoints. If the number of cells present in the database is less than DriverNumPoints, remaining point values will be set to -1 and the corresponding point texts will be left empty. Cells of type text will be returned in the PointText array.

Values that are returned:

Value in PointValue (0) = Value of first cell in the specified column of the database. It is returned as -1 if value cannot be converted to a number.

Text in PointText (0) = Value as text for the same cell. It is returned as empty if value cannot be converted to a text.

- ...

Value in PointValue (DriverNumPoints-1) = Value of last cell in the specified column of the database. It is returned as -1 if value cannot be converted to a number.

Text in PointText (DriverNumPoints-1) = Value as text for the same cell. It is returned as empty if value cannot be converted to a text.

Get Disturbance Record

Description of this command:

Requests the slave device to send the oscillography/waveform/disturbance record that correspond to selected record number. Requires a valid driver license. Format of output files is COMTRADE ASCII. Both .cfg and .dat are generated according to IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems (IEEE Std C37.111-1991). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command may require to previously send an Enter Password command.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

Command code according to relay model:

36 = P142 0050x

37 = P122 3D/5D/6G and P123 4G/6E/6G

35 = All other

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Meaning of the DriverP2 parameter:

Indicates the Record Number to be read (-255 to 255, 997, 998, 999, 1998, 1999, 2998 or 2999). For manual extraction, set the record number to a value between -255 and 255. If a record number cannot be selected (out of range), the following error will be returned: '[8362] CONFIG (Remote): Verify error on setting change'. If the relay does not support record selection, the following error will be returned: '[8213] CONFIG (Remote): Menu cell or column has no data'. Use 997, 998 or 999 to automatically check the DIST status flag to see if there is any new disturbance record available.

997 = used if record selection is not supported, so any record currently available is extracted (use with KCGG, for example). If DIST flag is 0, no record is downloaded. Record cell is reset after downloading.

998 = used to read the minimum record number available of all those present in the relay recorder memory. If the DIST flag is 0, the command still extracts the newest record. Record cell is not reset after downloading (use with P123 for example).

999 = used to read the maximum record number available of all those present in the relay recorder memory. If the DIST flag is 0, the command still extracts the newest record. Record cell is not reset after downloading. 1998 = same than 998, but record cell is reset one time before downloading (use with P142 for example). 1999 = same than 999, but record cell is reset one time before downloading. 2998 = same than 998, but record cell is reset one time after downloading (use with P122 for example). 2999 = same than 999, but record cell is reset one time after downloading. 3998 = same than 2998, but if DIST is 1, the command loops by resetting the record cell up to 50 times with a 3000 ms delay, until the DIST flag is 0 and before looking for the newest record (use with EPAC, for example). 3999 = same than 2999, but if DIST is 1, the command loops by resetting the record cell up to 50 times with a 3000 ms delay, until the DIST flag is 0 and before looking for the newest record. If DriverP5 is not 0, the selected record is never reset after the record is successfully downloaded. This command uses a fixed 50 ms delay before each Poll Buffer command is retried

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. For disturbance records, suggested value is a minimum of 10 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Max number of channels to be downloaded. Use 0 to read all channels available.

Meaning of the DriverP6 parameter:

Indicates the path where the COMTRADE files will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Indicates a TriggerTime that should not be downloaded if it happens to be the last TriggerTime available in the relay. If empty, the last TriggerTime available is downloaded. Format must be 'YYYY-MM-DD hh:mm:ss.uuuuuu000', where uuuuuu=microseconds.

Meaning of the DriverP8 parameter:

Comma-separated list with additional information about the relay to be used in the .hdr and .inf files. Format: FieldName1=value1,FieldName2=value2,etc. Example:

ID=123456,SerialNumber=A55GH77,Port=Ethernet

Meaning of the DriverP9 parameter:

Filename root for .hdr, .cfg, .dat and .inf files. If empty, 'XALSTOM_DisturbanceRecord.Relayxxx.hdr', 'XALSTOM_DisturbanceRecord.Relayxxx.cfg', 'XALSTOM_DisturbanceRecord.Relayxxx.dat' and 'XALSTOM_DisturbanceRecord.Relayxxx.inf' will be used, where xxx is the device unit address. Existing files with same name are overwritten.

Values that are returned:

Value in PointValue (0) = Number of channels downloaded

Value in PointValue (1) = Selected record number

Value in PointValue (2) = Total number of records available (only if P2=999 was used, else always 0)

Value in PointValue (3) = Number of samples available in selected record

Value in PointValue (6) = First sample (always 0)

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Value in PointValue (7) = Trigger point
Value in PointValue (8) = Number of samples
Value in PointValue (9) = Number of analog channels
Value in PointValue (10) = Number of digital channels
Text in PointText (0) = Download status
Text in PointText (1) = Selected record number (text version, can be 'n/a' when record is not available))
Text in PointText (2) = Recorder Status ('Stopped', 'Triggered' or 'Running')
Text in PointText (3) = Recorder Source ('Samples', 'Magnitudes', 'Phases' or 'Magnitudes & Phases')
Text in PointText (4) = Available channels bit mask
Text in PointText (5) = Channel types bit mask
Text in PointText (6) = First sample time
Text in PointText (7) = Trigger time
Text in PointText (8) = Last sample time
Text in PointText (9) = Comma-separated list of analog channel names
Text in PointText (10) = Comma-separated list of digital channel names

Get Disturbance Record List

Description of this command:

Returns a list of all disturbance records available, ordered by trigger time, newest first. Record number is returned in PointValue and trigger time in PointText. If the number of records found is less than the number of points reserved, remaining pointvalues are set to -1 and pointtexts are set to 'n/a'. This command may require to previously send an Enter Password command.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-63

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

34

Meaning of the DriverP2 parameter:

Indicates if the relay record buffer must not be examined:

0 = Explore relay memory and build a record list based on DriverP5 and DriverP6 settings (use with relays that support multiple records in memory, such as P122, P142 and EPAC).

1 = Do not explore relay memory and return the currently selected record trigger time (use with relays that do not support multiple records in memory, such as KCGG).

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Number of Reset Menu Cell commands to be sent to the record number cell until the DIST flag is 0. The purpose of this option is to make hidden disturbance records become visible to the Courier protocol, so they can be shown in the list. Otherwise only those records that have been already reset will be seen in the disturbance records list. This is not necessary with all relays. It should be used with EPAC relays, but it is not necessary with P122 for example. If this parameter is 0 or left empty, no reset commands are sent. If this parameter is not 0, use DriverP6 to indicate a delay between each reset and DIST flag re-check. If the DIST flag becomes 0, no more resets are sent. If DIST remains 1, a total DriverP5 resets are sent. This feature should be only used with relays that turn DIST off after resetting all the pending records, such as with EPAC relays. The value in DriverP5 should not be greater than the total number of disturbance records that can be stored in the relay memory. For example, P122 and P123 can store 5 records. P142 can store 25 records. EPAC can store 64 records.

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Meaning of the DriverP6 parameter:

If DriverP5 is not 0 or empty, this parameter indicates a delay in ms to be after the record was reset, and before the DIST flag is re-checked. A minimum of 3000 ms is recommended, in order to allow the relay enough time to update its internal record list and the DIST flag.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Value in PointValue (0) = Newest record number

Text in PointText (0) = Trigger time of newest record

- ...

Text in PointText (DriverNumPoints-1) = Oldest record number

Value in PointValue (DriverNumPoints-1) = Trigger time of oldest record

Poll Buffer

Description of this command:

Sends a Poll Buffer command to the relay.

Methods used to run this command:

Analog Input (ReadNumericValues) / Digital Input (ReadBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

11

Meaning of the DriverP2 parameter:

If 1, toggles IECBYTE

Values that are returned:

Value in PointValue (0) = Status Byte

Preload Setting as Text

Description of this command:

Sends a Preload Setting command as a text.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

2

Meaning of the DriverP2 parameter:

Row

Meaning of the DriverP3 parameter:

Col

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP6 parameter:

Text to be preloaded.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Read Circuit Breaker and Isolator 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.

Methods used to run this command:

Analog Input (ReadNumericValues) / Digital Input (ReadBooleanValues)

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

10

Meaning of the DriverP2 parameter:

0

Meaning of the DriverP3 parameter:

0

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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)

Read Consecutive Cells

Description of this command:

Reads consecutive cell contents of any type and of any device supporting the Courier protocol. All the cells read will belong to the same column and the number of cells to be read must be indicated in the DriverP8 parameter.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

20

Meaning of the DriverP2 parameter:

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

Meaning of the DriverP3 parameter:

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

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is

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sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Number of consecutive cells to be read (1-63). If left empty, it is assumed as 1 (read one cell).

Important note:

The number of cells to be read is taken from DriverP8 instead of from DriverNumPoints. This allows you to read cells that can return more than one value, as it is the case of cells of "flags" and "date" type. Flags can return 8, 16 or 32 bit values. Date blocks will return 9 consecutive values with year, month, day, hour, minutes, seconds, milliseconds, day of week and summertime (0 or 1). First returned text will be the date in English format. Second returned text will be the date in Spanish format. Cells containing unsupported value types (such as strings, for example), will take only one PointValue and will return a value of -1.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit

Value in PointValue (1) = Status Byte PLANT Bit

Value in PointValue (2) = Status Byte CONTROL Bit

Value in PointValue (3) = Status Byte BUSY Bit

Value in PointValue (4) = Status Byte OOS Bit

Value in PointValue (5) = Status Byte EVENT Bit

Value in PointValue (6) = Status Byte ALARM Bit

Value in PointValue (7) = Status Byte TRIP Bit

Value in PointValue (8) = Value of first cell requested

- ...

Value in PointValue (DriverNumPoints-1) = Value of last cell requested

Read Events

Description of this command:

Requests the slave device to send the events stored in its internal buffer. Some devices can make events available again by sending a Reset Event Records command.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-2

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

30

Meaning of the DriverP2 parameter:

This command combines four different flags of the form xxx that modify the command behaviour. The first flag indicates if an Accept Event command must not be sent after reading the event. The Accept Event command erases the event from the device internal buffer memory. Valid settings for first flag are: xxx0 = Do not send Accept Event command. Only one event can be read. Event is kept in device memory and can be re-read. xxx1 = Send Accept Event command after reading each event (event is erased from device memory). The second flag indicates that when some events have been actually extracted, the driver must return OK, even if some communication error has occurred. The purpose of this flag is to assure that the application calling the driver will not ignore the information returned by the driver, when it actually contains some new relay events. Typically when a driver returns an error code, all the information obtained during the command execution is lost. Valid settings for second flag are: xx0x = When a driver returns an error, always return the driver error to the application, even if some events were extracted. xx1x = When a driver returns an error, return the driver error only if no events were extracted. If at least one event was extracted and a driver error occurred (such as a timeout), the actual error message will be returned in PointText(1). The third flag indicates if additional information must be included in the event records. Valid settings for third flag are: x0xx = Do not include additional information x1xx = Include two more fields with record type (0=standard, 1=short, 2=long, 3=complex) and menu

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location. If this parameter is left empty, all flags are assumed as 0. The fourth flag indicates that the event extraction must be stopped at the first event whose type is not 0 (Standard Event Record). This allows to study events with complex structure. Valid settings for fourth flag are: 0xxx = Download all event types (0=Standard Event Record, 1=Short Fault Event Record, 2=Long Fault Event Record and 3=Complex Fault Event Record). 1xxx = Stop immediately when event type is 1, 2 or 3 is received. Accept Event command is not sent. If this parameter is left empty, all flags are assumed as 0.

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. When reading events, suggested value is a minimum of 5 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the maximum number of events to be read. Use 0 to read all events available. If DriverP2 first flag is xx0, only one event is read.

Meaning of the DriverP6 parameter:

Indicates the path where the event file will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Indicates the cell row for the fault record selection. This row number is used to obtain fault record information associated to the event. The value is typically 1, for most relays. Other relays can require other values, such as with P142 where this parameter must be 6. If left empty, 1 is assumed.

Meaning of the DriverP9 parameter:

Filename for event file. If empty, 'XALSTOM_Events.Relayxxx.txt' will be used, where xxx is the device unit address given in DriverP0.

Values that are returned:

Value in PointValue (0) = Indicates how many events have been extracted.

Text in PointText (0) = Description of last event extracted (empty if no events extracted).

Value in PointValue (1) = 1 if extraction was successful. 0 if there was an error during extraction.

Text in PointText (1) = Status message. Can be OK or can be the last driver error message.

Read Logic Control Inputs Status

Description of this command:

Gives the status of the logic control inputs.

Methods used to run this command:

Analog Input (ReadNumericValues) / Digital Input (ReadBooleanValues)

Number of points accepted by this command:

1-8

Meaning of the DriverP0 parameter:

Unit Address (1-255).

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 extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

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Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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

Read Output Status

Description of this command:

Gives the status of the outputs.

Methods used to run this command:

Analog Input (ReadNumericValues) / Digital Input (ReadBooleanValues)

Number of points accepted by this command:

1-8

Meaning of the DriverP0 parameter:

Unit Address (1-255).

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 extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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

Read Random Cells

Description of this command:

Reads a number of cells of any type and of any device supporting the Courier protocol. The cells read can belong to any column and the list of cells to be read must be indicated in the DriverP8 parameter.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1000

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

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Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

List of cells to be read, as a comma-separated list of <column><row> in hexadecimal value. Example to read IA, IB and IC fault values from a P-142: 0117,0118,0119

Important note:

The number of cells to be read is deducted from DriverP8 instead of from DriverNumPoints. This allows you to read cells that can return more than one value, as it is the case of cells of "flags" and "date" type. Flags can return 8, 16 or 32 bit values. Date blocks will return 9 consecutive values with year, month, day, hour, minutes, seconds, milliseconds, day of week and summertime (0 or 1). First returned text will be the date in English format. Second returned text will be the date in Spanish format. Cells containing unsupported value types (such as strings, for example), will take only one PointValue and will return a value of -1.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Value of first cell requested
- ...
Value in PointValue (DriverNumPoints-1) = Value of last cell requested

Read Real Time

Description of this command:

Reads the current system time from a slave device.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

17

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

6

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit

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Text in PointText (8) = IEC870 Date (ASCII Text)
Value in PointValue (8) = IEC870 Year (2000-2099)
Value in PointValue (9) = IEC870 Month (1-12)
Value in PointValue (10) = IEC870 Day (1-31)
Value in PointValue (11) = IEC870 Hour (0-23)
Value in PointValue (12) = IEC870 Minutes (0-59)
Value in PointValue (13) = IEC870 Seconds (0-59)
Value in PointValue (14) = IEC870 MilliSeconds (0-999)
Value in PointValue (15) = IEC870 Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (16) = IEC870 Summertime (0=standard time, 1=summer time)

Read Relay Status / Poll Status

Description of this command:

Gives the status of the eight bits returned in the status byte. This command can also create a log file for the OOS flag status.

Methods used to run this command:

Analog Input (ReadNumericValues) / Digital Input (ReadBooleanValues)

Number of points accepted by this command:

1-8

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if a OOS log file with debug info must be generated

0 = Do not create a OOS log file

1 = Create a OOS log file

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

If 1, flag names are returned in PointText array.

Meaning of the DriverP6 parameter:

Indicates the path where the OOS log file will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

User information to be added to the OOS file, to identify the relay. If empty, only the device unit address given in DriverP0 will be used.

Meaning of the DriverP9 parameter:

Filename for OOS log file. If empty, no file is generated. This file can be shared among several relays. Use DriverP8 to distinguish relays.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit

Value in PointValue (1) = Status Byte PLANT Bit

Value in PointValue (2) = Status Byte CONTROL Bit

Value in PointValue (3) = Status Byte BUSY Bit

Value in PointValue (4) = Status Byte OOS Bit

Value in PointValue (5) = Status Byte EVENT Bit

Value in PointValue (6) = Status Byte ALARM Bit

Value in PointValue (7) = Status Byte TRIP Bit

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Read Single ASCII Text Cell

Description of this command:

Reads an ASCII text in a cell of type text. For Serial Number, use row 8 and col 0, with text len 7. Cell must be of type ASCII Text.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

9

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

20

Meaning of the DriverP2 parameter:

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

Meaning of the DriverP3 parameter:

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

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Number of consecutive cells to be read (1-63). If left empty, it is assumed as 1 (read one cell).

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = ASCII Text Len
Text in PointText (8) = ASCII Text

Reset Event Records

Description of this command:

Resets cell BF05, making the events previously sent by a device available for transmission again. As a consequence, the event flag in the status word may be set indicating that there are events to be extracted. Not all devices will support this feature. Events may be discarded as soon as they have been accepted by a remote master, in which case this command will have no effect.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

5

Meaning of the DriverP3 parameter:

191

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is

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sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Reset Menu Cell

Description of this command:

Requests the slave device to reset the contents of a specified cell. The purpose of this command is to emulate the action of pressing the RESET key on the front of the slave device while a particular menu cell is visible. The result of this action is therefore cell specific.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates the row of the cell to be reset (0-255).

Meaning of the DriverP3 parameter:

Indicates the column of the cell to be reset (0-255).

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Reset Remote Link

Description of this command:

Resets the communications in a slave device. This command must be sent to IEC870 based slave devices before they will respond.

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

20

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Reset Trip Indication

Description of this command:

Resets the trip indication on the slave device.

Methods used to run this command:

Digital Output (WriteBooleanValues)

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Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

30

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Set Cell Value as Byte

Description of this command:

Sets the value of any 16-bit unsigned cell, limited to 0 to 255.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP2 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell col number (0-255).

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP9 parameter:

Value to be sent (0-255).

Values that are sent:

Value in PointValue (0) = This value is ignored since the text to be sent is configured in DriverP9.

Set Cell Value as Signed Integer

Description of this command:

Sets the value of any 16-bit signed cell.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

6

Meaning of the DriverP2 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell col number (0-255).

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Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

1

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP9 parameter:

Value to be sent (-32768 to 32767).

Values that are sent:

Value in PointValue (0) = This value is ignored since the text to be sent is configured in DriverP9.

Set Cell Value as String

Description of this command:

Sets an ASCII text in a cell of type text.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

1

Meaning of the DriverP2 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell col number (0-255).

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP9 parameter:

ASCII text to be sent.

Values that are sent:

Value in PointValue (0) = This value is ignored since the text to be sent is configured in DriverP9.

Set Cell Value as Unsigned Integer

Description of this command:

Sets the value of any 16-bit unsigned cell.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates the cell row number (0-255).

Meaning of the DriverP3 parameter:

Indicates the cell col number (0-255).

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Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP9 parameter:

Value to be sent (0-65535).

Values that are sent:

Value in PointValue (0) = This value is ignored since the text to be sent is configured in DriverP9.

Set Circuit Breaker Status

Description of this command:

Closes or trips the circuit breaker of the addressed device. The relays that are actually operated are defined.

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 = Input number as stated in DriverP8 (def=6)
- RLYCVTRIP = Input number as stated in DriverP9 (def=7)

In the Input Mask Page:

- INPCVCLOSE = Input number as stated in DriverP8 (def=6)
- INPCVOPEN = Input number as stated in DriverP9 (def=7)

Methods used to run this command:

Digital Output (WriteBooleanValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

10

Meaning of the DriverP2 parameter:

Indicates the values to be sent to the CB Trip/Close cell based on the current PointValue(0) value:

- 1 = Trip / Close Circuit Breaker 1
- 3 = Trip / Close Isolator 1
- 9 = Trip / Close Circuit Breaker 2
- 11 = Trip / Close Isolator 2
- 17 = Trip / Close Circuit Breaker 3
- 19 = Trip / Close Isolator 3
- 25 = Trip / Close Circuit Breaker 4
- 27 = Trip / Close Isolator 4 . . .

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 either an OPEN or CLOSE command by performing a post-reading operation. If the circuit breaker does not match the expected status, the command will be retried indefinitely. Inputs indicated in DriverP8 and DriverP9 are used as the breaker status feedback.

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. Inputs indicated in DriverP8 and DriverP9 are used as the breaker status feedback.

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. Inputs indicated in DriverP8 and DriverP9 are used as the breaker status feedback.

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Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Indicates the row number where the CB Trip/Close cell is located. If left blank or 0, row 16 (10 hex) is assumed by default.

Meaning of the DriverP6 parameter:

Indicates the col number where the CB Trip/Close cell is located. If left blank, col 0 is assumed by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Opto I/P Status bit number (0-15) where the RLYCVCLOSE/INPCVCLOSE status is received. If left empty, bit number 6 will be assumed (OPTO 7). If set to -1, this input is not checked.

Meaning of the DriverP9 parameter:

Opto I/P Status bit number (0-15) where the RLYCVTRIP/INPCVOPEN status is received. If left empty, bit number 7 will be assumed (OPTO 8). If set to -1, this input is not checked.

Values that are sent:

Value in PointValue (0) = 0 for Trip and P2 value is sent, 1 for Close and P2+1 value is sent.

Set Real Time to a Given Time

Description of this command:

Sends a new time to a slave device for the setting of real time system clocks. The command send a user-defined date and time. This command might not be implemented in slave devices that use the relative millisecond time format for time tagging.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

9

Meaning of the DriverP0 parameter:

Unit Address (0-255). Use 255 for ALL RELAYS broadcast option.

Meaning of the DriverP1 parameter:

3

Meaning of the DriverP2 parameter:

Estimated communication delay when transmitting date and time to the relay, in milliseconds. This delay has to do with the communication link and compensates the elapsed time between the moment the driver transmits the telegram with the PC clock date and time to the relay and the moment the telegram is received and processed by the relay.

Meaning of the DriverP3 parameter:

Indicates how many times this command is sent when using the ALL RELAYS broadcast option. If empty, 4 is assumed.

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are sent:

Value in PointValue (0) = IEC870 Year (2000-2099)

Value in PointValue (1) = IEC870 Month (1-12)

Value in PointValue (2) = IEC870 Day (1-31)

Value in PointValue (3) = IEC870 Hour (0-23)

Value in PointValue (4) = IEC870 Minutes (0-59)

Value in PointValue (5) = IEC870 Seconds (0-59)

Value in PointValue (6) = IEC870 MilliSeconds (0-999)

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Value in PointValue (7) = IEC870 Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (8) = IEC870 Summertime (0=standard time, 1=summer time)

Set Real Time with PC Clock Time

Description of this command:

Sends a new time to a slave device for the setting of real time system clocks. The command send the current PC-clock date and time. This command might not be implemented in slave devices that use the relative millisecond time format for time tagging.

Methods used to run this command:

Analog Output (WriteNumericValues)

Number of points accepted by this command:

1

Meaning of the DriverP0 parameter:

Unit Address (0-255). Use 255 for ALL RELAYS broadcast option.

Meaning of the DriverP1 parameter:

4

Meaning of the DriverP2 parameter:

Estimated communication delay when transmitting date and time to the relay, in milliseconds. This delay has to do with the communication link and compensates the elapsed time between the moment the driver transmits the telegram with the PC clock date and time to the relay and the moment the telegram is received and processed by the relay.

Meaning of the DriverP3 parameter:

Indicates how many times this command is sent when using the ALL RELAYS broadcast option. If empty, 4 is assumed.

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are sent:

Value in PointValue (0) = This value is ignored

Synchronize

Description of this command:

Sets a new time in the relay using the PC clock date and time. This command might not work in relays that use the relative millisecond time format for time tagging, such as KCGG140.

This command follows this procedure:

- Sends a Reset Remote Link command.
- Reads the current date and time from the relay.
- Compares the received relay date and time (plus the estimated reading delay indicated in DriverP5) against the current PC clock date and time.
- Based on the allowed time difference given in the P2 parameter, the driver determines if a synchronization is necessary.
- If a synchronization is required, the driver resets the password cell 0002 and sends the Enter Password command to the relay. Up to two passwords can be attempted.
- After sending the password, the driver sends the current PC clock date and time (plus the estimated transmission delay indicated in DriverP6) to the relay.
- After synchronization, reads back the new date and time from the relay.
- Compares the received relay date and time (plus the estimated reading delay indicated in DriverP5) against the current PC clock date and time.
- Based on the allowed time difference given in the P2 parameter, the driver determines if the synchronization was successful or not.
- Returns status or error information about the synchronization result.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-9

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

Synchronization mode, that sets the type of driver reaction when a synchronization resulted in the relay clock to be out of the allowed difference:

7 = If not successful, the driver call is considered successful and the unsuccessful situation is reported in PointValue(0) and PointText(0).

8 = If not successful, the driver call is considered as failed and a driver error is returned.

9 = If not successful, a 'Set Real Time' command is sent to all relays (using relay address 255) and after that synchronization is automatically retried, reporting the final situation in PointValue(0) and PointText(0).

Meaning of the DriverP2 parameter:

Allowed difference, in milliseconds.

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

Estimated communication delay when reading date and time from the relay, in milliseconds. This delay has to do with the communication link and compensates the elapsed time between the moment the relay transmits the telegram with its date and time and the moment the telegram is received and processed by the driver.

Meaning of the DriverP6 parameter:

Estimated communication delay when transmitting date and time to the relay, in milliseconds. This delay has to do with the communication link and compensates the elapsed time between the moment the driver transmits the telegram with the PC clock date and time to the relay and the moment the telegram is received and processed by the relay.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

First and second ASCII password to be sent before synchronizing. If left empty, default is AAAA,ZZZZ.

Meaning of the DriverP9 parameter:

Row and column where the date-time information is located, in 'XXXXh' format. If left empty, default is 0108h.

Values that are returned:

Value in PointValue (0) = 0 if synchronization not needed, 1 if synchronized OK, 2 if error synchronizing.

Value in PointValue (1) = Returns how many retries were done with 'Set Real Time' command sent to all relays.

Value in PointValue (3) = Time difference before synchronization in milliseconds.

Value in PointValue (8) = Time difference after synchronization in milliseconds (also returns previous difference if synchronization was not needed).

Text in PointText (0) = Returned status or error message.

Text in PointText (1) = PC clock date and time obtained when starting communication.

Text in PointText (2) = Relay date and time received when starting communication.

Text in PointText (3) = Relay date and time received when starting communication, corrected with reading delay.

Text in PointText (4) = PC clock date and time obtained before synchronization (empty if synchronization was not needed).

Text in PointText (5) = Actual PC clock date and time used for synchronization, corrected with transmitting delay (empty if synchronization was not needed).

Text in PointText (6) = PC clock date and time obtained after synchronization (empty if synchronization was not needed).

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Text in PointText (7) = Relay date and time received after synchronization (previous date and time if synchronization was not needed).

Text in PointText (8) = Relay date and time received after synchronization, corrected with reading delay (previous date and time if synchronization was not needed).

[Alstom KAVS-100 Commands]

Alstom KAVS-100 Commands

Read Measured Values from KAVS-100

Description of this command:

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

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-29

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

5

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit

Value in PointValue (1) = Status Byte PLANT Bit

Value in PointValue (2) = Status Byte CONTROL Bit

Value in PointValue (3) = Status Byte BUSY Bit

Value in PointValue (4) = Status Byte OOS Bit

Value in PointValue (5) = Status Byte EVENT Bit

Value in PointValue (6) = Status Byte ALARM Bit

Value in PointValue (7) = Status Byte TRIP Bit

Value in PointValue (8) = Line Voltage, in Volts

Value in PointValue (9) = Bus Voltage, in Volts

Value in PointValue (10) = Phase angle (between line and bus voltage), in Degrees

Value in PointValue (11) = Slip frequency, in Hertz

Value in PointValue (12) = System frequency (F), in Hertz

WHEN AVAILABLE:

Value in PointValue (13) = Status of logic control input 0

Value in PointValue (14) = Status of logic control input 1

Value in PointValue (15) = Status of logic control input 2

Value in PointValue (16) = Status of logic control input 3

Value in PointValue (17) = Status of logic control input 4

Value in PointValue (18) = Status of logic control input 5

Value in PointValue (19) = Status of logic control input 6

Value in PointValue (20) = Status of logic control input 7

Value in PointValue (21) = Status of output 0

Value in PointValue (22) = Status of output 1

Value in PointValue (23) = Status of output 2

Value in PointValue (24) = Status of output 3

Value in PointValue (25) = Status of output 4

Value in PointValue (26) = Status of output 5

Value in PointValue (27) = Status of output 6

Value in PointValue (28) = Status of output 7

[Alstom KBCH-120 Commands]

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Alstom KBCH-120 Commands

Read Measured Values from KBCH-120

Description of this command:

Returns a set of measured values from the KBCH-120 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-83

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

110

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Frequency, in Hertz
Value in PointValue (9) = Plant Status Bit 0
Value in PointValue (10) = Plant Status Bit 1
Value in PointValue (11) = Plant Status Bit 2
Value in PointValue (12) = Plant Status Bit 3
Value in PointValue (13) = Plant Status Bit 4
Value in PointValue (14) = Plant Status Bit 5
Value in PointValue (15) = Plant Status Bit 6
Value in PointValue (16) = Plant Status Bit 7
Value in PointValue (17) = Plant Status Bit 8
Value in PointValue (18) = Plant Status Bit 9
Value in PointValue (19) = Plant Status Bit 10
Value in PointValue (20) = Plant Status Bit 11
Value in PointValue (21) = Plant Status Bit 12
Value in PointValue (22) = Plant Status Bit 13
Value in PointValue (23) = Plant Status Bit 14
Value in PointValue (24) = Plant Status Bit 15
Value in PointValue (25) = Control Status Bit 0
Value in PointValue (26) = Control Status Bit 1
Value in PointValue (27) = Control Status Bit 2
Value in PointValue (28) = Control Status Bit 3
Value in PointValue (29) = Control Status Bit 4
Value in PointValue (30) = Control Status Bit 5
Value in PointValue (31) = Control Status Bit 6
Value in PointValue (32) = Control Status Bit 7
Value in PointValue (33) = Control Status Bit 8
Value in PointValue (34) = Control Status Bit 9
Value in PointValue (35) = Control Status Bit 10
Value in PointValue (36) = Control Status Bit 11
Value in PointValue (37) = Control Status Bit 12

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Value in PointValue (38) = Control Status Bit 13
Value in PointValue (39) = Control Status Bit 14
Value in PointValue (40) = Control Status Bit 15
Value in PointValue (41) = Active Group
Value in PointValue (42) = Opto I/P Status (16-bit integer)
Value in PointValue (43) = Relay O/P Status (8-bit integer)
Value in PointValue (44) = Alarm Status Bit 0
Value in PointValue (45) = Alarm Status Bit 1
Value in PointValue (46) = Alarm Status Bit 2
Value in PointValue (47) = Alarm Status Bit 3
Value in PointValue (48) = Alarm Status Bit 4
Value in PointValue (49) = Alarm Status Bit 5
Value in PointValue (50) = Alarm Status Bit 6
Value in PointValue (51) = Alarm Status Bit 7
Value in PointValue (52) = Alarm Status Bit 8
Value in PointValue (53) = Alarm Status Bit 9
Value in PointValue (54) = Alarm Status Bit 10
Value in PointValue (55) = Alarm Status Bit 11
Value in PointValue (56) = Alarm Status Bit 12
Value in PointValue (57) = Alarm Status Bit 13
Value in PointValue (58) = Alarm Status Bit 14
Value in PointValue (59) = Alarm Status Bit 15
Value in PointValue (60) = MS1 Ia Diff Current in Differential circuit A phase
Value in PointValue (61) = MS1 Ib Diff Current in Differential circuit B phase
Value in PointValue (62) = MS1 Ic Diff Current in Differential circuit C phase
Value in PointValue (63) = MS1 Ia Bias Current in Bias circuit A phase
Value in PointValue (64) = MS1 Ib Diff Current in Bias circuit B phase
Value in PointValue (65) = MS1 Ic Diff Current in Bias circuit C phase
Value in PointValue (66) = MS1 F System frequency
Value in PointValue (67) = INP Set Grp 2 Input to select setting group (bit 0)
Value in PointValue (68) = INP Set Grp 2 Input to select setting group (bit 1)
Value in PointValue (69) = INP Set Grp 2 Input to select setting group (bit 2)
Value in PointValue (70) = INP Set Grp 2 Input to select setting group (bit 3)
Value in PointValue (71) = INP Set Grp 2 Input to select setting group (bit 4)
Value in PointValue (72) = INP Set Grp 2 Input to select setting group (bit 5)
Value in PointValue (73) = INP Set Grp 2 Input to select setting group (bit 6)
Value in PointValue (74) = INP Set Grp 2 Input to select setting group (bit 7)
Value in PointValue (75) = INP Set Grp 2 Input to select setting group (bit 8)
Value in PointValue (76) = INP Set Grp 2 Input to select setting group (bit 9)
Value in PointValue (77) = INP Set Grp 2 Input to select setting group (bit 10)
Value in PointValue (78) = INP Set Grp 2 Input to select setting group (bit 11)
Value in PointValue (79) = INP Set Grp 2 Input to select setting group (bit 12)
Value in PointValue (80) = INP Set Grp 2 Input to select setting group (bit 13)
Value in PointValue (81) = INP Set Grp 2 Input to select setting group (bit 14)
Value in PointValue (82) = INP Set Grp 2 Input to select setting group (bit 15)

Read Fault Values from KBCH-120

Description of this command:

Returns a set of fault values from the KBCH-120 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-23

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

111

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is

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sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Fault Ia HV Fault Current in HV winding A phase
Value in PointValue (9) = Fault Ib HV Fault Current in HV winding B phase
Value in PointValue (10) = Fault Ic HV Fault Current in HV winding C phase
Value in PointValue (11) = Fault Ia LV1 Fault Current in LV1 winding A phase
Value in PointValue (12) = Fault Ib LV1 Fault Current in LV1 winding B phase
Value in PointValue (13) = Fault Ic LV1 Fault Current in LV1 winding C phase
Value in PointValue (14) = Fault Ia LV2 Fault Current in LV2 winding A phase
Value in PointValue (15) = Fault Ib LV2 Fault Current in LV2 winding B phase
Value in PointValue (16) = Fault Ic LV2 Fault Current in LV2 winding C phase
Value in PointValue (17) = Fault Ia Diff Fault Current in Differential winding A phase
Value in PointValue (18) = Fault Ib Diff Fault Current in Differential winding B phase
Value in PointValue (19) = Fault Ic Diff Fault Current in Differential winding C phase
Value in PointValue (20) = Fault Ia Bias Fault Current in Bias winding A phase
Value in PointValue (21) = Fault Ib Bias Fault Current in Bias winding B phase
Value in PointValue (22) = Fault Ic Bias Fault Current in Bias winding C phase
[Alstom KCEG-140 Commands]

Alstom KCEG-140 Commands

Read Measured Values from KCEG-140

Description of this command:

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

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-46

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

4

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit

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Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Current in phase A (Ia), in amperes
Value in PointValue (9) = Current in phase B (Ib), in amperes
Value in PointValue (10) = Current in phase C (Ic), in amperes
Value in PointValue (11) = Current in phase N (Io), in amperes
Value in PointValue (12) = Frequency (F), in Hertz
Value in PointValue (13) = Number of relay operations (Sum(OPS))
Value in PointValue (14) = $\text{Sum}(Ia)^2$, in amperes²
Value in PointValue (15) = $\text{Sum}(Ib)^2$, in amperes²
Value in PointValue (16) = $\text{Sum}(Ic)^2$, in amperes²
Value in PointValue (17) = Last failure operation time, in minutes
Value in PointValue (18) = Phase AB voltage (Vab), in Volts
Value in PointValue (19) = Phase BC voltage (Vbc), in Volts
Value in PointValue (20) = Phase CA voltage (Vca), in Volts
Value in PointValue (21) = Phase A voltage (Va), in Volts
Value in PointValue (22) = Phase B voltage (Vb), in Volts
Value in PointValue (23) = Phase C voltage (Vc), 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) = Operating mode

WHEN AVAILABLE:

Value in PointValue (30) = Status of logic control input 0
Value in PointValue (31) = Status of logic control input 1
Value in PointValue (32) = Status of logic control input 2
Value in PointValue (33) = Status of logic control input 3
Value in PointValue (34) = Status of logic control input 4
Value in PointValue (35) = Status of logic control input 5
Value in PointValue (36) = Status of logic control input 6
Value in PointValue (37) = Status of logic control input 7
Value in PointValue (38) = Status of output 0
Value in PointValue (39) = Status of output 1
Value in PointValue (40) = Status of output 2
Value in PointValue (41) = Status of output 3
Value in PointValue (42) = Status of output 4
Value in PointValue (43) = Status of output 5
Value in PointValue (44) = Status of output 6
Value in PointValue (45) = Status of output 7

Read Measured Values from KCEG-140 (reduced version)

Description of this command:

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

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-37

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

40

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Values that are returned:

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

WHEN AVAILABLE:

Value in PointValue (21) = Status of logic control input 0
Value in PointValue (22) = Status of logic control input 1
Value in PointValue (23) = Status of logic control input 2
Value in PointValue (24) = Status of logic control input 3
Value in PointValue (25) = Status of logic control input 4
Value in PointValue (26) = Status of logic control input 5
Value in PointValue (27) = Status of logic control input 6
Value in PointValue (28) = Status of logic control input 7
Value in PointValue (29) = Status of output 0
Value in PointValue (30) = Status of output 1
Value in PointValue (31) = Status of output 2
Value in PointValue (32) = Status of output 3
Value in PointValue (33) = Status of output 4
Value in PointValue (34) = Status of output 5
Value in PointValue (35) = Status of output 6
Value in PointValue (36) = Status of output 7
[Alstom KCGG-140 Commands]

Alstom KCGG-140 Commands

Read Measured Values from KCGG-140

Description of this command:

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

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-34

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

3

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

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Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Current in phase A (Ia), in amperes
Value in PointValue (9) = Current in phase B (Ib), in amperes
Value in PointValue (10) = Current in phase C (Ic), in amperes
Value in PointValue (11) = Current in phase N (Io), in amperes
Value in PointValue (12) = Frequency (F), in Hertz
Value in PointValue (13) = Number of relay operations (Sum(OPS))
Value in PointValue (14) = $\text{Sum}(Ia)^2$, in amperes²
Value in PointValue (15) = $\text{Sum}(Ib)^2$, in amperes²
Value in PointValue (16) = $\text{Sum}(Ic)^2$, in amperes²
Value in PointValue (17) = Last failure operation time, in minutes

WHEN AVAILABLE:

Value in PointValue (18) = Status of logic control input 0
Value in PointValue (19) = Status of logic control input 1
Value in PointValue (20) = Status of logic control input 2
Value in PointValue (21) = Status of logic control input 3
Value in PointValue (22) = Status of logic control input 4
Value in PointValue (23) = Status of logic control input 5
Value in PointValue (24) = Status of logic control input 6
Value in PointValue (25) = Status of logic control input 7
Value in PointValue (26) = Status of output 0
Value in PointValue (27) = Status of output 1
Value in PointValue (28) = Status of output 2
Value in PointValue (29) = Status of output 3
Value in PointValue (30) = Status of output 4
Value in PointValue (31) = Status of output 5
Value in PointValue (32) = Status of output 6
Value in PointValue (33) = Status of output 7

Read Fault Values from KCGG-140

Description of this command:

Returns a set of fault values from the KCGG-140 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-15

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

27

Meaning of the DriverP2 parameter:

1

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is

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sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

1

Meaning of the DriverP6 parameter:

1

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Fault Ia, in amperes
Value in PointValue (1) = Fault Ib, in amperes
Value in PointValue (2) = Fault Ic, in amperes
Value in PointValue (3) = Fault Io, in amperes
Value in PointValue (8) = CB Trip time, in seconds
Text in PointText (9) = FnowG (ASCII Text)
Text in PointText (10) = FnG (ASCII Text)
Text in PointText (11) = Fn-1G (ASCII Text)
Text in PointText (12) = Fn-2G (ASCII Text)
Text in PointText (13) = Fn-3G (ASCII Text)
Text in PointText (14) = Fn-4G (ASCII Text)

Important note:

ASCII Texts in points 5 to 10 are returned in the PointText property.

Get Last Disturbance Record from KCGG-140

Description of this command:

Requests the slave device to send the disturbance record if available. Format of output files is COMTRADE ASCII. Both .cfg and .dat are generated according to IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems (IEEE Std C37.111-1999). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command resets the DIST flag, so after reading the disturbance record, a consecutive read will return that no record is available until a new record is actually available.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

35

Meaning of the DriverP2 parameter:

997

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:
0 = Use English format (MM/DD/YYYY hh:mm:ss.000)
1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. For disturbance records, suggested value is a minimum of 10 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

0

Meaning of the DriverP6 parameter:

Indicates the path where the COMTRADE files will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Meaning of the DriverP8 parameter:

Comma-separated list with additional information about the relay to be used in the .hdr and .inf files. Format: FieldName1=value1,FieldName2=value2,etc. Example:
ID=123456,SerialNumber=A55GH77,Port=Ethernet

Meaning of the DriverP9 parameter:

Filename root for .hdr, .cfg, .dat and .inf files. If empty, 'XALSTOM_DisturbanceRecord.Relayxxx.hdr', 'XALSTOM_DisturbanceRecord.Relayxxx.cfg', 'XALSTOM_DisturbanceRecord.Relayxxx.dat' and 'XALSTOM_DisturbanceRecord.Relayxxx.inf' will be used, where xxx is the device unit address. Existing files with same name are overwritten.

Values that are returned:

Value in PointValue (0) = See the full list in the 'Get Disturbance Record' generic Courier command.
[Alstom KVGC-202 Commands]

Alstom KVGC-202 Commands

Read Fault Values from KVGC-202

Description of this command:

Returns a set of fault values from the KVGC-202 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-76

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

106

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Frequency, in Hertz
Value in PointValue (9) = Plant Status Bit 0
Value in PointValue (10) = Plant Status Bit 1
Value in PointValue (11) = Plant Status Bit 2
Value in PointValue (12) = Plant Status Bit 3
Value in PointValue (13) = Plant Status Bit 4
Value in PointValue (14) = Plant Status Bit 5
Value in PointValue (15) = Plant Status Bit 6
Value in PointValue (16) = Plant Status Bit 7
Value in PointValue (17) = Plant Status Bit 8
Value in PointValue (18) = Plant Status Bit 9
Value in PointValue (19) = Plant Status Bit 10
Value in PointValue (20) = Plant Status Bit 11
Value in PointValue (21) = Plant Status Bit 12
Value in PointValue (22) = Plant Status Bit 13
Value in PointValue (23) = Plant Status Bit 14

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Value in PointValue (24) = Plant Status Bit 15
Value in PointValue (25) = Control Status Bit 0
Value in PointValue (26) = Control Status Bit 1
Value in PointValue (27) = Control Status Bit 2
Value in PointValue (28) = Control Status Bit 3
Value in PointValue (29) = Control Status Bit 4
Value in PointValue (30) = Control Status Bit 5
Value in PointValue (31) = Control Status Bit 6
Value in PointValue (32) = Control Status Bit 7
Value in PointValue (33) = Control Status Bit 8
Value in PointValue (34) = Control Status Bit 9
Value in PointValue (35) = Control Status Bit 10
Value in PointValue (36) = Control Status Bit 11
Value in PointValue (37) = Control Status Bit 12
Value in PointValue (38) = Control Status Bit 13
Value in PointValue (39) = Control Status Bit 14
Value in PointValue (40) = Control Status Bit 15
Value in PointValue (41) = Active Group
Value in PointValue (42) = Opto I/P Status (16-bit integer)
Value in PointValue (43) = Relay O/P Status (8-bit integer)
Value in PointValue (44) = Alarm Status Bit 0
Value in PointValue (45) = Alarm Status Bit 1
Value in PointValue (46) = Alarm Status Bit 2
Value in PointValue (47) = Alarm Status Bit 3
Value in PointValue (48) = Alarm Status Bit 4
Value in PointValue (49) = Alarm Status Bit 5
Value in PointValue (50) = Alarm Status Bit 6
Value in PointValue (51) = Alarm Status Bit 7
Value in PointValue (52) = Alarm Status Bit 8
Value in PointValue (53) = Alarm Status Bit 9
Value in PointValue (54) = Alarm Status Bit 10
Value in PointValue (55) = Alarm Status Bit 11
Value in PointValue (56) = Alarm Status Bit 12
Value in PointValue (57) = Alarm Status Bit 13
Value in PointValue (58) = Alarm Status Bit 14
Value in PointValue (59) = Alarm Status Bit 15
Value in PointValue (60) = Blocked
Value in PointValue (61) = V<< blk
Value in PointValue (62) = V<blkLower
Value in PointValue (63) = TapLimit
Value in PointValue (64) = Vbc
Value in PointValue (65) = Vreg
Value in PointValue (66) = Ic
Value in PointValue (67) = IL
Value in PointValue (68) = PowerFactor
Value in PointValue (69) = Frequency
Value in PointValue (70) = TapPosition
Value in PointValue (71) = Highest tap
Value in PointValue (72) = Lowest tap
Value in PointValue (73) = Total Ops
Value in PointValue (74) = FreqOps
Value in PointValue (75) = tREMAIN
[MICOM M300 Commands]

MICOM M300 Commands

Read Measured Values from MICOM M300

Description of this command:

Returns a set of measured values from the MICOM M300 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

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Number of points accepted by this command:

1-33

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

116

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Van
Value in PointValue (1) = Vbn
Value in PointValue (2) = Vcn
Value in PointValue (3) = Vab
Value in PointValue (4) = Vbc
Value in PointValue (5) = Vca
Value in PointValue (6) = Ia
Value in PointValue (7) = Ib
Value in PointValue (8) = Ic
Value in PointValue (9) = In
Value in PointValue (10) = Frequency
Value in PointValue (11) = dc Input
Value in PointValue (12) = Pulse Count 1
Value in PointValue (13) = Pulse Count 2
Value in PointValue (14) = V %NPS
Value in PointValue (15) = I %NPS
Value in PointValue (16) = A Phase Real Power
Value in PointValue (17) = B Phase Real Power
Value in PointValue (18) = C Phase Real Power
Value in PointValue (19) = A Phase Reactive Power
Value in PointValue (20) = B Phase Reactive Power
Value in PointValue (21) = C Phase Reactive Power
Value in PointValue (22) = A Phase Apparent Power
Value in PointValue (23) = B Phase Apparent Power
Value in PointValue (24) = C Phase Apparent Power
Value in PointValue (25) = Total Real Power
Value in PointValue (26) = Total Reactive Power
Value in PointValue (27) = Total Apparent Power
Value in PointValue (28) = Total Power Factor
Value in PointValue (29) = Import Real Energy
Value in PointValue (30) = Export Real Energy
Value in PointValue (31) = Import Reactive Energy
Value in PointValue (32) = Export Reactive Energy
[MICOM P122/P123 Commands]

MICOM P122/P123 Commands

Read Measured Values from MICOM P122/P123

Description of this command:

Returns a set of measured values from the P122 or P123 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-83

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

104

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Frequency, in Hertz
Value in PointValue (9) = Active Group
Value in PointValue (10) = Opto I/P Status Bit 0 (Opto 1)
Value in PointValue (11) = Opto I/P Status Bit 1 (Opto 2)
Value in PointValue (12) = Opto I/P Status Bit 2 (Opto 3)
Value in PointValue (13) = Opto I/P Status Bit 3 (Opto 4)
Value in PointValue (14) = Opto I/P Status Bit 4 (Opto 5)
Value in PointValue (15) = Opto I/P Status Bit 5 (Opto 6)
Value in PointValue (16) = Opto I/P Status Bit 6 (Opto 7)
Value in PointValue (17) = Opto I/P Status Bit 7 (Opto 8)
Value in PointValue (18) = Opto I/P Status Bit 8 (Opto 9)
Value in PointValue (19) = Opto I/P Status Bit 9 (Opto 10)
Value in PointValue (20) = Opto I/P Status Bit 10 (Opto 11)
Value in PointValue (21) = Opto I/P Status Bit 11 (Opto 12)
Value in PointValue (22) = Opto I/P Status Bit 12 (Opto 13)
Value in PointValue (23) = Opto I/P Status Bit 13 (Opto 14)
Value in PointValue (24) = Opto I/P Status Bit 14 (Opto 15)
Value in PointValue (25) = Opto I/P Status Bit 15 (Opto 16)
Value in PointValue (26) = Relay O/P Status Bit 0
Value in PointValue (27) = Relay O/P Status Bit 1
Value in PointValue (28) = Relay O/P Status Bit 2
Value in PointValue (29) = Relay O/P Status Bit 3
Value in PointValue (30) = Relay O/P Status Bit 4
Value in PointValue (31) = Relay O/P Status Bit 5
Value in PointValue (32) = Relay O/P Status Bit 6
Value in PointValue (33) = Relay O/P Status Bit 7
Value in PointValue (34) = Relay O/P Status Bit 8
Value in PointValue (35) = Relay O/P Status Bit 9
Value in PointValue (36) = Relay O/P Status Bit 10
Value in PointValue (37) = Relay O/P Status Bit 11
Value in PointValue (38) = Relay O/P Status Bit 12
Value in PointValue (39) = Relay O/P Status Bit 13
Value in PointValue (40) = Relay O/P Status Bit 14
Value in PointValue (41) = Relay O/P Status Bit 15
Value in PointValue (42) = Alarm Status Bit 0
Value in PointValue (43) = Alarm Status Bit 1
Value in PointValue (44) = Alarm Status Bit 2
Value in PointValue (45) = Alarm Status Bit 3
Value in PointValue (46) = Alarm Status Bit 4
Value in PointValue (47) = Alarm Status Bit 5

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Value in PointValue (48) = Alarm Status Bit 6
Value in PointValue (49) = Alarm Status Bit 7
Value in PointValue (50) = Alarm Status Bit 8
Value in PointValue (51) = Alarm Status Bit 9
Value in PointValue (52) = Alarm Status Bit 10
Value in PointValue (53) = Alarm Status Bit 11
Value in PointValue (54) = Alarm Status Bit 12
Value in PointValue (55) = Alarm Status Bit 13
Value in PointValue (56) = Alarm Status Bit 14
Value in PointValue (57) = Alarm Status Bit 15
Value in PointValue (58) = MSR Ia
Value in PointValue (59) = MSR Ib
Value in PointValue (60) = MSR Ic
Value in PointValue (61) = MSR IN
Value in PointValue (62) = MSR I2
Value in PointValue (63) = MSR I1
Value in PointValue (64) = MSR Ratio I2/I1
Value in PointValue (65) = MSR Th State
Value in PointValue (66) = MSR Frequency
Value in PointValue (67) = MSR RST Max & Aver RMS
Value in PointValue (68) = MSR Max Ia RMS
Value in PointValue (69) = MSR Max Ib RMS
Value in PointValue (70) = MSR Max Ic RMS
Value in PointValue (71) = MSR Aver Ia
Value in PointValue (72) = MSR Aver Ib
Value in PointValue (73) = MSR Aver Ic
Value in PointValue (74) = MSR IN - fn
Value in PointValue (75) = MSR RST Max Subperiod
Value in PointValue (76) = MSR RST Ia Subperiod
Value in PointValue (77) = MSR RST Ib Subperiod
Value in PointValue (78) = MSR RST Ic Subperiod
Value in PointValue (79) = MSR RST Rolling Average
Value in PointValue (80) = MSR Ia Rolling Average
Value in PointValue (81) = MSR Ib Rolling Average
Value in PointValue (82) = MSR Ic Rolling Average

Read Fault Values from MICOM P122/P123

Description of this command:

Returns a set of fault values from the P122 or P123 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-10

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

27

Meaning of the DriverP2 parameter:

2

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

1

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Meaning of the DriverP6 parameter:

1

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Record Number
Text in PointText (1) = Fault Date (ASCII Text)
Value in PointValue (2) = Fault Active Group
Text in PointText (3) = Fault Phase In Fault (ASCII Text)
Text in PointText (4) = Fault Detected By (ASCII Text)
Value in PointValue (5) = Fault Magnitude [A]
Value in PointValue (6) = Fault Ia Magnitude [A]
Value in PointValue (7) = Fault Ib Magnitude [A]
Value in PointValue (8) = Fault Ic Magnitude [A]
Value in PointValue (9) = Fault In Magnitude [A]

Important note:

Record Number should be first written with the 'Set Unsigned 16-bit Cell Value' command. Cell is located at col 2 row 1 and possible values are 1 to 5. Newest record is 5.

Important note:

If is cell is password-protected, use 'Enter Password' command first to enter the device's password and enable the changing of the record number to be read.

Get Last Disturbance Record from MICOM P122/P123

Description of this command:

Requests the slave device to send the disturbance record if available. Format of output files is COMTRADE ASCII. Both .cfg and .dat are generated according to IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems (IEEE Std C37.111-1999). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command does not reset the DIST flag, so after reading the disturbance record, a consecutive read will return the same disturbance record.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

35

Meaning of the DriverP2 parameter:

2998

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. For disturbance records, suggested value is a minimum of 10 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

0

Meaning of the DriverP6 parameter:

Indicates the path where the COMTRADE files will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

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Meaning of the DriverP8 parameter:

Comma-separated list with additional information about the relay to be used in the .hdr and .inf files. Format: FieldName1=value1,FieldName2=value2,etc. Example:
ID=123456,SerialNumber=A55GH77,Port=Ethernet

Meaning of the DriverP9 parameter:

Filename root for .hdr, .cfg, .dat and .inf files. If empty, 'XALSTOM_DisturbanceRecord.Relayxxx.hdr', 'XALSTOM_DisturbanceRecord.Relayxxx.cfg', 'XALSTOM_DisturbanceRecord.Relayxxx.dat' and 'XALSTOM_DisturbanceRecord.Relayxxx.inf' will be used, where xxx is the device unit address. Existing files with same name are overwritten.

Values that are returned:

Value in PointValue (0) = See the full list in the 'Get Disturbance Record' generic Courier command.
[MICOM P141/P142/P143 Commands]

MICOM P141/P142/P143 Commands

Read Measured Values from MICOM P141/P142

Description of this command:

Returns a set of measured values from the P141/P142 relays. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-123

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

102

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Frequency, in Hertz
Value in PointValue (9) = Plant Status Bit 0
Value in PointValue (10) = Plant Status Bit 1
Value in PointValue (11) = Plant Status Bit 2
Value in PointValue (12) = Plant Status Bit 3
Value in PointValue (13) = Plant Status Bit 4
Value in PointValue (14) = Plant Status Bit 5
Value in PointValue (15) = Plant Status Bit 6
Value in PointValue (16) = Plant Status Bit 7
Value in PointValue (17) = Plant Status Bit 8
Value in PointValue (18) = Plant Status Bit 9
Value in PointValue (19) = Plant Status Bit 10
Value in PointValue (20) = Plant Status Bit 11
Value in PointValue (21) = Plant Status Bit 12
Value in PointValue (22) = Plant Status Bit 13
Value in PointValue (23) = Plant Status Bit 14

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Value in PointValue (24) = Plant Status Bit 15
Value in PointValue (25) = Control Status Bit 0
Value in PointValue (26) = Control Status Bit 1
Value in PointValue (27) = Control Status Bit 2
Value in PointValue (28) = Control Status Bit 3
Value in PointValue (29) = Control Status Bit 4
Value in PointValue (30) = Control Status Bit 5
Value in PointValue (31) = Control Status Bit 6
Value in PointValue (32) = Control Status Bit 7
Value in PointValue (33) = Control Status Bit 8
Value in PointValue (34) = Control Status Bit 9
Value in PointValue (35) = Control Status Bit 10
Value in PointValue (36) = Control Status Bit 11
Value in PointValue (37) = Control Status Bit 12
Value in PointValue (38) = Control Status Bit 13
Value in PointValue (39) = Control Status Bit 14
Value in PointValue (40) = Control Status Bit 15
Value in PointValue (41) = Active Group
Value in PointValue (42) = Opto I/P Status Bit 0 (Opto 1)
Value in PointValue (43) = Opto I/P Status Bit 1 (Opto 2)
Value in PointValue (44) = Opto I/P Status Bit 2 (Opto 3)
Value in PointValue (45) = Opto I/P Status Bit 3 (Opto 4)
Value in PointValue (46) = Opto I/P Status Bit 4 (Opto 5)
Value in PointValue (47) = Opto I/P Status Bit 5 (Opto 6)
Value in PointValue (48) = Opto I/P Status Bit 6 (Opto 7)
Value in PointValue (49) = Opto I/P Status Bit 7 (Opto 8)
Value in PointValue (50) = Relay O/P Status Bit 0
Value in PointValue (51) = Relay O/P Status Bit 1
Value in PointValue (52) = Relay O/P Status Bit 2
Value in PointValue (53) = Relay O/P Status Bit 3
Value in PointValue (54) = Relay O/P Status Bit 4
Value in PointValue (55) = Relay O/P Status Bit 5
Value in PointValue (56) = Relay O/P Status Bit 6
Value in PointValue (57) = Relay O/P Status Bit 7
Value in PointValue (58) = Alarm Status Bit 0
Value in PointValue (59) = Alarm Status Bit 1
Value in PointValue (60) = Alarm Status Bit 2
Value in PointValue (61) = Alarm Status Bit 3
Value in PointValue (62) = Alarm Status Bit 4
Value in PointValue (63) = Alarm Status Bit 5
Value in PointValue (64) = Alarm Status Bit 6
Value in PointValue (65) = Alarm Status Bit 7
Value in PointValue (66) = Alarm Status Bit 8
Value in PointValue (67) = Alarm Status Bit 9
Value in PointValue (68) = Alarm Status Bit 10
Value in PointValue (69) = Alarm Status Bit 11
Value in PointValue (70) = Alarm Status Bit 12
Value in PointValue (71) = Alarm Status Bit 13
Value in PointValue (72) = Alarm Status Bit 14
Value in PointValue (73) = Alarm Status Bit 15
Value in PointValue (74) = Alarm Status Bit 16
Value in PointValue (75) = Alarm Status Bit 17
Value in PointValue (76) = Alarm Status Bit 18
Value in PointValue (77) = Alarm Status Bit 19
Value in PointValue (78) = Alarm Status Bit 20
Value in PointValue (79) = Alarm Status Bit 21
Value in PointValue (80) = Alarm Status Bit 22
Value in PointValue (81) = Alarm Status Bit 23
Value in PointValue (82) = Alarm Status Bit 24
Value in PointValue (83) = Alarm Status Bit 25
Value in PointValue (84) = Alarm Status Bit 26
Value in PointValue (85) = Alarm Status Bit 27

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Value in PointValue (86) = Alarm Status Bit 28
Value in PointValue (87) = Alarm Status Bit 29
Value in PointValue (88) = Alarm Status Bit 30
Value in PointValue (89) = Alarm Status Bit 31
Value in PointValue (90) = IN Measured Mag
Value in PointValue (91) = I1 Magnitude
Value in PointValue (92) = I2 Magnitude
Value in PointValue (93) = I0 Magnitude
Value in PointValue (94) = IA RMS
Value in PointValue (95) = IB RMS
Value in PointValue (96) = IC RMS
Value in PointValue (97) = VAB Magnitude
Value in PointValue (98) = VBC Magnitude
Value in PointValue (99) = VCA Magnitude
Value in PointValue (100) = VN Derived Mag
Value in PointValue (101) = V1 Magnitude
Value in PointValue (102) = V2 Magnitude
Value in PointValue (103) = V0 Magnitude
Value in PointValue (104) = VAN RMS
Value in PointValue (105) = VBN RMS
Value in PointValue (106) = VCN RMS
Value in PointValue (107) = C/S Voltage Mag
Value in PointValue (108) = C/S Voltage Ang
Value in PointValue (109) = C/S Bus-Line Mag
Value in PointValue (110) = Slip Frequency
Value in PointValue (111) = A Phase Watts
Value in PointValue (112) = B Phase Watts
Value in PointValue (113) = C Phase Watts
Value in PointValue (114) = A Phase VAr
Value in PointValue (115) = B Phase VAr
Value in PointValue (116) = C Phase VAr
Value in PointValue (117) = 3 Phase Watts
Value in PointValue (118) = 3 Phase VAr
Value in PointValue (119) = APH Power Factor
Value in PointValue (120) = BPH Power Factor
Value in PointValue (121) = CPH Power Factor
Value in PointValue (122) = CB Operations

Read Fault Values from MICOM P141

Description of this command:

Returns a set of fault values from the P141 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-178

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

103

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit

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Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Select Event
Text in PointText (9) = IEC870 Date (ASCII Text)
Value in PointValue (9) = IEC870 Year (2000-2099)
Value in PointValue (10) = IEC870 Month (1-12)
Value in PointValue (11) = IEC870 Day (1-31)
Value in PointValue (12) = IEC870 Hour (0-23)
Value in PointValue (13) = IEC870 Minutes (0-59)
Value in PointValue (14) = IEC870 Seconds (0-59)
Value in PointValue (15) = IEC870 MilliSeconds (0-999)
Value in PointValue (16) = IEC870 Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (17) = IEC870 Summertime (0=standard time, 1=summer time)
Value in PointValue (18) = Record Value
Value in PointValue (19) = Select Fault
Value in PointValue (20) = Start Elements Bit 0
Value in PointValue (21) = Start Elements Bit 1
Value in PointValue (22) = Start Elements Bit 2
Value in PointValue (23) = Start Elements Bit 3
Value in PointValue (24) = Start Elements Bit 4
Value in PointValue (25) = Start Elements Bit 5
Value in PointValue (26) = Start Elements Bit 6
Value in PointValue (27) = Start Elements Bit 7
Value in PointValue (28) = Start Elements Bit 8
Value in PointValue (29) = Start Elements Bit 9
Value in PointValue (30) = Start Elements Bit 10
Value in PointValue (31) = Start Elements Bit 11
Value in PointValue (32) = Start Elements Bit 12
Value in PointValue (33) = Start Elements Bit 13
Value in PointValue (34) = Start Elements Bit 14
Value in PointValue (35) = Start Elements Bit 15
Value in PointValue (36) = Start Elements Bit 16
Value in PointValue (37) = Start Elements Bit 17
Value in PointValue (38) = Start Elements Bit 18
Value in PointValue (39) = Start Elements Bit 19
Value in PointValue (40) = Start Elements Bit 20
Value in PointValue (41) = Start Elements Bit 21
Value in PointValue (42) = Start Elements Bit 22
Value in PointValue (43) = Start Elements Bit 23
Value in PointValue (44) = Start Elements Bit 24
Value in PointValue (45) = Start Elements Bit 25
Value in PointValue (46) = Start Elements Bit 26
Value in PointValue (47) = Start Elements Bit 27
Value in PointValue (48) = Start Elements Bit 28
Value in PointValue (49) = Start Elements Bit 29
Value in PointValue (50) = Start Elements Bit 30
Value in PointValue (51) = Start Elements Bit 31
Value in PointValue (52) = Trip Elements 1 Bit 0
Value in PointValue (53) = Trip Elements 1 Bit 1
Value in PointValue (54) = Trip Elements 1 Bit 2
Value in PointValue (55) = Trip Elements 1 Bit 3
Value in PointValue (56) = Trip Elements 1 Bit 4
Value in PointValue (57) = Trip Elements 1 Bit 5
Value in PointValue (58) = Trip Elements 1 Bit 6
Value in PointValue (59) = Trip Elements 1 Bit 7
Value in PointValue (60) = Trip Elements 1 Bit 8
Value in PointValue (61) = Trip Elements 1 Bit 9
Value in PointValue (62) = Trip Elements 1 Bit 10

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Value in PointValue (63) = Trip Elements 1 Bit 11
Value in PointValue (64) = Trip Elements 1 Bit 12
Value in PointValue (65) = Trip Elements 1 Bit 13
Value in PointValue (66) = Trip Elements 1 Bit 14
Value in PointValue (67) = Trip Elements 1 Bit 15
Value in PointValue (68) = Trip Elements 1 Bit 16
Value in PointValue (69) = Trip Elements 1 Bit 17
Value in PointValue (70) = Trip Elements 1 Bit 18
Value in PointValue (71) = Trip Elements 1 Bit 19
Value in PointValue (72) = Trip Elements 1 Bit 20
Value in PointValue (73) = Trip Elements 1 Bit 21
Value in PointValue (74) = Trip Elements 1 Bit 22
Value in PointValue (75) = Trip Elements 1 Bit 23
Value in PointValue (76) = Trip Elements 1 Bit 24
Value in PointValue (77) = Trip Elements 1 Bit 25
Value in PointValue (78) = Trip Elements 1 Bit 26
Value in PointValue (79) = Trip Elements 1 Bit 27
Value in PointValue (80) = Trip Elements 1 Bit 28
Value in PointValue (81) = Trip Elements 1 Bit 29
Value in PointValue (82) = Trip Elements 1 Bit 30
Value in PointValue (83) = Trip Elements 1 Bit 31
Value in PointValue (84) = Trip Elements 2 Bit 0
Value in PointValue (85) = Trip Elements 2 Bit 1
Value in PointValue (86) = Trip Elements 2 Bit 2
Value in PointValue (87) = Trip Elements 2 Bit 3
Value in PointValue (88) = Trip Elements 2 Bit 4
Value in PointValue (89) = Trip Elements 2 Bit 5
Value in PointValue (90) = Trip Elements 2 Bit 6
Value in PointValue (91) = Trip Elements 2 Bit 7
Value in PointValue (92) = Trip Elements 2 Bit 8
Value in PointValue (93) = Trip Elements 2 Bit 9
Value in PointValue (94) = Trip Elements 2 Bit 10
Value in PointValue (95) = Trip Elements 2 Bit 11
Value in PointValue (96) = Trip Elements 2 Bit 12
Value in PointValue (97) = Trip Elements 2 Bit 13
Value in PointValue (98) = Trip Elements 2 Bit 14
Value in PointValue (99) = Trip Elements 2 Bit 15
Value in PointValue (100) = Trip Elements 2 Bit 16
Value in PointValue (101) = Trip Elements 2 Bit 17
Value in PointValue (102) = Trip Elements 2 Bit 18
Value in PointValue (103) = Trip Elements 2 Bit 19
Value in PointValue (104) = Trip Elements 2 Bit 20
Value in PointValue (105) = Trip Elements 2 Bit 21
Value in PointValue (106) = Trip Elements 2 Bit 22
Value in PointValue (107) = Trip Elements 2 Bit 23
Value in PointValue (108) = Trip Elements 2 Bit 24
Value in PointValue (109) = Trip Elements 2 Bit 25
Value in PointValue (110) = Trip Elements 2 Bit 26
Value in PointValue (111) = Trip Elements 2 Bit 27
Value in PointValue (112) = Trip Elements 2 Bit 28
Value in PointValue (113) = Trip Elements 2 Bit 29
Value in PointValue (114) = Trip Elements 2 Bit 30
Value in PointValue (115) = Trip Elements 2 Bit 31
Value in PointValue (116) = Fault Alarms Bit 0
Value in PointValue (117) = Fault Alarms Bit 1
Value in PointValue (118) = Fault Alarms Bit 2
Value in PointValue (119) = Fault Alarms Bit 3
Value in PointValue (120) = Fault Alarms Bit 4
Value in PointValue (121) = Fault Alarms Bit 5
Value in PointValue (122) = Fault Alarms Bit 6
Value in PointValue (123) = Fault Alarms Bit 7
Value in PointValue (124) = Fault Alarms Bit 8

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Value in PointValue (125) = Fault Alarms Bit 9
Value in PointValue (126) = Fault Alarms Bit 10
Value in PointValue (127) = Fault Alarms Bit 11
Value in PointValue (128) = Fault Alarms Bit 12
Value in PointValue (129) = Fault Alarms Bit 13
Value in PointValue (130) = Fault Alarms Bit 14
Value in PointValue (131) = Fault Alarms Bit 15
Value in PointValue (132) = Fault Alarms Bit 16
Value in PointValue (133) = Fault Alarms Bit 17
Value in PointValue (134) = Fault Alarms Bit 18
Value in PointValue (135) = Fault Alarms Bit 19
Value in PointValue (136) = Fault Alarms Bit 20
Value in PointValue (137) = Fault Alarms Bit 21
Value in PointValue (138) = Fault Alarms Bit 22
Value in PointValue (139) = Fault Alarms Bit 23
Value in PointValue (140) = Fault Alarms Bit 24
Value in PointValue (141) = Fault Alarms Bit 25
Value in PointValue (142) = Fault Alarms Bit 26
Value in PointValue (143) = Fault Alarms Bit 27
Value in PointValue (144) = Fault Alarms Bit 28
Value in PointValue (145) = Fault Alarms Bit 29
Value in PointValue (146) = Fault Alarms Bit 30
Value in PointValue (147) = Fault Alarms Bit 31
Text in PointText (148) = Fault Date (ASCII Text)
Value in PointValue (148) = Fault Year (2000-2099)
Value in PointValue (149) = Fault Month (1-12)
Value in PointValue (150) = Fault Day (1-31)
Value in PointValue (151) = Fault Hour (0-23)
Value in PointValue (152) = Fault Minutes (0-59)
Value in PointValue (153) = Fault Seconds (0-59)
Value in PointValue (154) = Fault MilliSeconds (0-999)
Value in PointValue (155) = Fault Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (156) = Fault Summertime (0=standard time, 1=summer time)
Value in PointValue (157) = Fault Active Group
Value in PointValue (158) = Fault Duration
Value in PointValue (159) = Fault Location (meters)
Value in PointValue (160) = Fault Location (impedance)
Value in PointValue (161) = IA
Value in PointValue (162) = IB
Value in PointValue (163) = IC
Value in PointValue (164) = VAB
Value in PointValue (165) = VBC
Value in PointValue (166) = VCA
Value in PointValue (167) = IN Measured
Value in PointValue (168) = IN Sensitive
Value in PointValue (169) = IREFDiff
Value in PointValue (170) = IREFBias
Value in PointValue (171) = VAN
Value in PointValue (172) = VBN
Value in PointValue (173) = VCN
Value in PointValue (174) = VN Derived
Value in PointValue (175) = Select Record
Value in PointValue (176) = Record Type
Value in PointValue (177) = Record Data

Read Fault Values from MICOM P142

Description of this command:

Returns a set of fault values from the P142 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

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Number of points accepted by this command:

1-36

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

120

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Select Event
Value in PointValue (9) = Select Fault
Text in PointText (10) = Fault Date (ASCII Text)
Value in PointValue (10) = Fault Year (2000-2099)
Value in PointValue (11) = Fault Month (1-12)
Value in PointValue (12) = Fault Day (1-31)
Value in PointValue (13) = Fault Hour (0-23)
Value in PointValue (14) = Fault Minutes (0-59)
Value in PointValue (15) = Fault Seconds (0-59)
Value in PointValue (16) = Fault MilliSeconds (0-999)
Value in PointValue (17) = Fault Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (18) = Fault Summertime (0=standard time, 1=summer time)
Value in PointValue (19) = Fault Active Group
Value in PointValue (20) = Fault Duration
Value in PointValue (21) = Fault Location (meters)
Value in PointValue (22) = Fault Location (miles)
Value in PointValue (23) = IA
Value in PointValue (24) = IB
Value in PointValue (25) = IC
Value in PointValue (26) = VAB
Value in PointValue (27) = VBC
Value in PointValue (28) = VCA
Value in PointValue (29) = IN Measured
Value in PointValue (30) = IN Derived
Value in PointValue (31) = IN Sensitive
Value in PointValue (32) = VAN
Value in PointValue (33) = VBN
Value in PointValue (34) = VCN
Value in PointValue (35) = VN Derived

Important note:

Select Fault record should be first written with the 'Set Unsigned 16-bit Cell Value' command. Cell is located at col 1 row 6 and possible values are 0 to 4. Newest record is 0.

Read Measured Values from MICOM P143**Description of this command:**

Returns a set of measured values from the P143 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

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Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-139

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

100

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit
Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Frequency, in Hertz
Value in PointValue (9) = Plant Status Bit 0
Value in PointValue (10) = Plant Status Bit 1
Value in PointValue (11) = Plant Status Bit 2
Value in PointValue (12) = Plant Status Bit 3
Value in PointValue (13) = Plant Status Bit 4
Value in PointValue (14) = Plant Status Bit 5
Value in PointValue (15) = Plant Status Bit 6
Value in PointValue (16) = Plant Status Bit 7
Value in PointValue (17) = Plant Status Bit 8
Value in PointValue (18) = Plant Status Bit 9
Value in PointValue (19) = Plant Status Bit 10
Value in PointValue (20) = Plant Status Bit 11
Value in PointValue (21) = Plant Status Bit 12
Value in PointValue (22) = Plant Status Bit 13
Value in PointValue (23) = Plant Status Bit 14
Value in PointValue (24) = Plant Status Bit 15
Value in PointValue (25) = Control Status Bit 0
Value in PointValue (26) = Control Status Bit 1
Value in PointValue (27) = Control Status Bit 2
Value in PointValue (28) = Control Status Bit 3
Value in PointValue (29) = Control Status Bit 4
Value in PointValue (30) = Control Status Bit 5
Value in PointValue (31) = Control Status Bit 6
Value in PointValue (32) = Control Status Bit 7
Value in PointValue (33) = Control Status Bit 8
Value in PointValue (34) = Control Status Bit 9
Value in PointValue (35) = Control Status Bit 10
Value in PointValue (36) = Control Status Bit 11
Value in PointValue (37) = Control Status Bit 12
Value in PointValue (38) = Control Status Bit 13
Value in PointValue (39) = Control Status Bit 14
Value in PointValue (40) = Control Status Bit 15
Value in PointValue (41) = Active Group
Value in PointValue (42) = Opto I/P Status Bit 0 (Opto 1)
Value in PointValue (43) = Opto I/P Status Bit 1 (Opto 2)

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Value in PointValue (44) = Opto I/P Status Bit 2 (Opto 3)
Value in PointValue (45) = Opto I/P Status Bit 3 (Opto 4)
Value in PointValue (46) = Opto I/P Status Bit 4 (Opto 5)
Value in PointValue (47) = Opto I/P Status Bit 5 (Opto 6)
Value in PointValue (48) = Opto I/P Status Bit 6 (Opto 7)
Value in PointValue (49) = Opto I/P Status Bit 7 (Opto 8)
Value in PointValue (50) = Opto I/P Status Bit 8
Value in PointValue (51) = Opto I/P Status Bit 9
Value in PointValue (52) = Opto I/P Status Bit 10
Value in PointValue (53) = Opto I/P Status Bit 11
Value in PointValue (54) = Opto I/P Status Bit 12
Value in PointValue (55) = Opto I/P Status Bit 13
Value in PointValue (56) = Opto I/P Status Bit 14
Value in PointValue (57) = Opto I/P Status Bit 15
Value in PointValue (58) = Relay O/P Status Bit 0
Value in PointValue (59) = Relay O/P Status Bit 1
Value in PointValue (60) = Relay O/P Status Bit 2
Value in PointValue (61) = Relay O/P Status Bit 3
Value in PointValue (62) = Relay O/P Status Bit 4
Value in PointValue (63) = Relay O/P Status Bit 5
Value in PointValue (64) = Relay O/P Status Bit 6
Value in PointValue (65) = Relay O/P Status Bit 7
Value in PointValue (66) = Relay O/P Status Bit 8
Value in PointValue (67) = Relay O/P Status Bit 9
Value in PointValue (68) = Relay O/P Status Bit 10
Value in PointValue (69) = Relay O/P Status Bit 11
Value in PointValue (70) = Relay O/P Status Bit 12
Value in PointValue (71) = Relay O/P Status Bit 13
Value in PointValue (72) = Relay O/P Status Bit 14
Value in PointValue (73) = Relay O/P Status Bit 15
Value in PointValue (74) = Alarm Status Bit 0
Value in PointValue (75) = Alarm Status Bit 1
Value in PointValue (76) = Alarm Status Bit 2
Value in PointValue (77) = Alarm Status Bit 3
Value in PointValue (78) = Alarm Status Bit 4
Value in PointValue (79) = Alarm Status Bit 5
Value in PointValue (80) = Alarm Status Bit 6
Value in PointValue (81) = Alarm Status Bit 7
Value in PointValue (82) = Alarm Status Bit 8
Value in PointValue (83) = Alarm Status Bit 9
Value in PointValue (84) = Alarm Status Bit 10
Value in PointValue (85) = Alarm Status Bit 11
Value in PointValue (86) = Alarm Status Bit 12
Value in PointValue (87) = Alarm Status Bit 13
Value in PointValue (88) = Alarm Status Bit 14
Value in PointValue (89) = Alarm Status Bit 15
Value in PointValue (90) = Alarm Status Bit 16
Value in PointValue (91) = Alarm Status Bit 17
Value in PointValue (92) = Alarm Status Bit 18
Value in PointValue (93) = Alarm Status Bit 19
Value in PointValue (94) = Alarm Status Bit 20
Value in PointValue (95) = Alarm Status Bit 21
Value in PointValue (96) = Alarm Status Bit 22
Value in PointValue (97) = Alarm Status Bit 23
Value in PointValue (98) = Alarm Status Bit 24
Value in PointValue (99) = Alarm Status Bit 25
Value in PointValue (100) = Alarm Status Bit 26
Value in PointValue (101) = Alarm Status Bit 27
Value in PointValue (102) = Alarm Status Bit 28
Value in PointValue (103) = Alarm Status Bit 29
Value in PointValue (104) = Alarm Status Bit 30
Value in PointValue (105) = Alarm Status Bit 31

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Value in PointValue (106) = IN Measured Mag
Value in PointValue (107) = I1 Magnitude
Value in PointValue (108) = I2 Magnitude
Value in PointValue (109) = I0 Magnitude
Value in PointValue (110) = IA RMS
Value in PointValue (111) = IB RMS
Value in PointValue (112) = IC RMS
Value in PointValue (113) = VAB Magnitude
Value in PointValue (114) = VBC Magnitude
Value in PointValue (115) = VCA Magnitude
Value in PointValue (116) = VN Derived Mag
Value in PointValue (117) = V1 Magnitude
Value in PointValue (118) = V2 Magnitude
Value in PointValue (119) = V0 Magnitude
Value in PointValue (120) = VAN RMS
Value in PointValue (121) = VBN RMS
Value in PointValue (122) = VCN RMS
Value in PointValue (123) = C/S Voltage Mag
Value in PointValue (124) = C/S Voltage Ang
Value in PointValue (125) = C/S Bus-Line Mag
Value in PointValue (126) = Slip Frequency
Value in PointValue (127) = A Phase Watts
Value in PointValue (128) = B Phase Watts
Value in PointValue (129) = C Phase Watts
Value in PointValue (130) = A Phase VARS
Value in PointValue (131) = B Phase VARS
Value in PointValue (132) = C Phase VARS
Value in PointValue (133) = 3 Phase Watts
Value in PointValue (134) = 3 Phase VARS
Value in PointValue (135) = APh Power Factor
Value in PointValue (136) = BPh Power Factor
Value in PointValue (137) = CPh Power Factor
Value in PointValue (138) = CB Operations

Read Fault Values from MICOM P143

Description of this command:

Returns a set of fault values from the P143 relay. Refer to the 'values returned' section of this command for a list of measurements returned.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-178

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

101

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. Suggested value is a minimum of 3 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Values that are returned:

Value in PointValue (0) = Status Byte DIST Bit
Value in PointValue (1) = Status Byte PLANT Bit
Value in PointValue (2) = Status Byte CONTROL Bit
Value in PointValue (3) = Status Byte BUSY Bit
Value in PointValue (4) = Status Byte OOS Bit
Value in PointValue (5) = Status Byte EVENT Bit

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Value in PointValue (6) = Status Byte ALARM Bit
Value in PointValue (7) = Status Byte TRIP Bit
Value in PointValue (8) = Select Event
Text in PointText (9) = IEC870 Date (ASCII Text)
Value in PointValue (9) = IEC870 Year (2000-2099)
Value in PointValue (10) = IEC870 Month (1-12)
Value in PointValue (11) = IEC870 Day (1-31)
Value in PointValue (12) = IEC870 Hour (0-23)
Value in PointValue (13) = IEC870 Minutes (0-59)
Value in PointValue (14) = IEC870 Seconds (0-59)
Value in PointValue (15) = IEC870 MilliSeconds (0-999)
Value in PointValue (16) = IEC870 Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (17) = IEC870 Summertime (0=standard time, 1=summer time)
Value in PointValue (18) = Record Value
Value in PointValue (19) = Select Fault
Value in PointValue (20) = Start Elements Bit 0
Value in PointValue (21) = Start Elements Bit 1
Value in PointValue (22) = Start Elements Bit 2
Value in PointValue (23) = Start Elements Bit 3
Value in PointValue (24) = Start Elements Bit 4
Value in PointValue (25) = Start Elements Bit 5
Value in PointValue (26) = Start Elements Bit 6
Value in PointValue (27) = Start Elements Bit 7
Value in PointValue (28) = Start Elements Bit 8
Value in PointValue (29) = Start Elements Bit 9
Value in PointValue (30) = Start Elements Bit 10
Value in PointValue (31) = Start Elements Bit 11
Value in PointValue (32) = Start Elements Bit 12
Value in PointValue (33) = Start Elements Bit 13
Value in PointValue (34) = Start Elements Bit 14
Value in PointValue (35) = Start Elements Bit 15
Value in PointValue (36) = Start Elements Bit 16
Value in PointValue (37) = Start Elements Bit 17
Value in PointValue (38) = Start Elements Bit 18
Value in PointValue (39) = Start Elements Bit 19
Value in PointValue (40) = Start Elements Bit 20
Value in PointValue (41) = Start Elements Bit 21
Value in PointValue (42) = Start Elements Bit 22
Value in PointValue (43) = Start Elements Bit 23
Value in PointValue (44) = Start Elements Bit 24
Value in PointValue (45) = Start Elements Bit 25
Value in PointValue (46) = Start Elements Bit 26
Value in PointValue (47) = Start Elements Bit 27
Value in PointValue (48) = Start Elements Bit 28
Value in PointValue (49) = Start Elements Bit 29
Value in PointValue (50) = Start Elements Bit 30
Value in PointValue (51) = Start Elements Bit 31
Value in PointValue (52) = Trip Elements 1 Bit 0
Value in PointValue (53) = Trip Elements 1 Bit 1
Value in PointValue (54) = Trip Elements 1 Bit 2
Value in PointValue (55) = Trip Elements 1 Bit 3
Value in PointValue (56) = Trip Elements 1 Bit 4
Value in PointValue (57) = Trip Elements 1 Bit 5
Value in PointValue (58) = Trip Elements 1 Bit 6
Value in PointValue (59) = Trip Elements 1 Bit 7
Value in PointValue (60) = Trip Elements 1 Bit 8
Value in PointValue (61) = Trip Elements 1 Bit 9
Value in PointValue (62) = Trip Elements 1 Bit 10
Value in PointValue (63) = Trip Elements 1 Bit 11
Value in PointValue (64) = Trip Elements 1 Bit 12
Value in PointValue (65) = Trip Elements 1 Bit 13
Value in PointValue (66) = Trip Elements 1 Bit 14

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Value in PointValue (67) = Trip Elements 1 Bit 15
Value in PointValue (68) = Trip Elements 1 Bit 16
Value in PointValue (69) = Trip Elements 1 Bit 17
Value in PointValue (70) = Trip Elements 1 Bit 18
Value in PointValue (71) = Trip Elements 1 Bit 19
Value in PointValue (72) = Trip Elements 1 Bit 20
Value in PointValue (73) = Trip Elements 1 Bit 21
Value in PointValue (74) = Trip Elements 1 Bit 22
Value in PointValue (75) = Trip Elements 1 Bit 23
Value in PointValue (76) = Trip Elements 1 Bit 24
Value in PointValue (77) = Trip Elements 1 Bit 25
Value in PointValue (78) = Trip Elements 1 Bit 26
Value in PointValue (79) = Trip Elements 1 Bit 27
Value in PointValue (80) = Trip Elements 1 Bit 28
Value in PointValue (81) = Trip Elements 1 Bit 29
Value in PointValue (82) = Trip Elements 1 Bit 30
Value in PointValue (83) = Trip Elements 1 Bit 31
Value in PointValue (84) = Trip Elements 2 Bit 0
Value in PointValue (85) = Trip Elements 2 Bit 1
Value in PointValue (86) = Trip Elements 2 Bit 2
Value in PointValue (87) = Trip Elements 2 Bit 3
Value in PointValue (88) = Trip Elements 2 Bit 4
Value in PointValue (89) = Trip Elements 2 Bit 5
Value in PointValue (90) = Trip Elements 2 Bit 6
Value in PointValue (91) = Trip Elements 2 Bit 7
Value in PointValue (92) = Trip Elements 2 Bit 8
Value in PointValue (93) = Trip Elements 2 Bit 9
Value in PointValue (94) = Trip Elements 2 Bit 10
Value in PointValue (95) = Trip Elements 2 Bit 11
Value in PointValue (96) = Trip Elements 2 Bit 12
Value in PointValue (97) = Trip Elements 2 Bit 13
Value in PointValue (98) = Trip Elements 2 Bit 14
Value in PointValue (99) = Trip Elements 2 Bit 15
Value in PointValue (100) = Trip Elements 2 Bit 16
Value in PointValue (101) = Trip Elements 2 Bit 17
Value in PointValue (102) = Trip Elements 2 Bit 18
Value in PointValue (103) = Trip Elements 2 Bit 19
Value in PointValue (104) = Trip Elements 2 Bit 20
Value in PointValue (105) = Trip Elements 2 Bit 21
Value in PointValue (106) = Trip Elements 2 Bit 22
Value in PointValue (107) = Trip Elements 2 Bit 23
Value in PointValue (108) = Trip Elements 2 Bit 24
Value in PointValue (109) = Trip Elements 2 Bit 25
Value in PointValue (110) = Trip Elements 2 Bit 26
Value in PointValue (111) = Trip Elements 2 Bit 27
Value in PointValue (112) = Trip Elements 2 Bit 28
Value in PointValue (113) = Trip Elements 2 Bit 29
Value in PointValue (114) = Trip Elements 2 Bit 30
Value in PointValue (115) = Trip Elements 2 Bit 31
Value in PointValue (116) = Fault Alarms Bit 0
Value in PointValue (117) = Fault Alarms Bit 1
Value in PointValue (118) = Fault Alarms Bit 2
Value in PointValue (119) = Fault Alarms Bit 3
Value in PointValue (120) = Fault Alarms Bit 4
Value in PointValue (121) = Fault Alarms Bit 5
Value in PointValue (122) = Fault Alarms Bit 6
Value in PointValue (123) = Fault Alarms Bit 7
Value in PointValue (124) = Fault Alarms Bit 8
Value in PointValue (125) = Fault Alarms Bit 9
Value in PointValue (126) = Fault Alarms Bit 10
Value in PointValue (127) = Fault Alarms Bit 11
Value in PointValue (128) = Fault Alarms Bit 12

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Value in PointValue (129) = Fault Alarms Bit 13
Value in PointValue (130) = Fault Alarms Bit 14
Value in PointValue (131) = Fault Alarms Bit 15
Value in PointValue (132) = Fault Alarms Bit 16
Value in PointValue (133) = Fault Alarms Bit 17
Value in PointValue (134) = Fault Alarms Bit 18
Value in PointValue (135) = Fault Alarms Bit 19
Value in PointValue (136) = Fault Alarms Bit 20
Value in PointValue (137) = Fault Alarms Bit 21
Value in PointValue (138) = Fault Alarms Bit 22
Value in PointValue (139) = Fault Alarms Bit 23
Value in PointValue (140) = Fault Alarms Bit 24
Value in PointValue (141) = Fault Alarms Bit 25
Value in PointValue (142) = Fault Alarms Bit 26
Value in PointValue (143) = Fault Alarms Bit 27
Value in PointValue (144) = Fault Alarms Bit 28
Value in PointValue (145) = Fault Alarms Bit 29
Value in PointValue (146) = Fault Alarms Bit 30
Value in PointValue (147) = Fault Alarms Bit 31
Value in PointValue (148) = Fault Year (2000-2099)
Value in PointValue (149) = Fault Month (1-12)
Value in PointValue (150) = Fault Day (1-31)
Value in PointValue (151) = Fault Hour (0-23)
Value in PointValue (152) = Fault Minutes (0-59)
Value in PointValue (153) = Fault Seconds (0-59)
Value in PointValue (154) = Fault MilliSeconds (0-999)
Value in PointValue (155) = Fault Day of Week (1=Monday to 7=Sunday, or 0=unknown)
Value in PointValue (156) = Fault Summertime (0=standard time, 1=summer time)
Value in PointValue (157) = Fault Active Group
Value in PointValue (158) = Fault Duration
Value in PointValue (159) = Fault Location (meters)
Value in PointValue (160) = Fault Location (impedance)
Value in PointValue (161) = IA
Value in PointValue (162) = IB
Value in PointValue (163) = IC
Value in PointValue (164) = VAB
Value in PointValue (165) = VBC
Value in PointValue (166) = VCA
Value in PointValue (167) = IN Measured
Value in PointValue (168) = IN Sensitive
Value in PointValue (169) = IREFDiff
Value in PointValue (170) = IREFBias
Value in PointValue (171) = VAN
Value in PointValue (172) = VBN
Value in PointValue (173) = VCN
Value in PointValue (174) = VN Derived
Value in PointValue (175) = Select Record
Value in PointValue (176) = Record Type
Value in PointValue (177) = Record Data

Get Last Disturbance Record from MICOM P141/P142/P143

Description of this command:

Requests the slave device to send the last disturbance record available. Format of output files is COMTRADE ASCII. Both .cfg and .dat are generated according to IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems (IEEE Std C37.111-1999). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command resets the DIST flag, so after reading the disturbance record, a consecutive read will return that no record is available until a new record is actually available.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-11

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

35

Meaning of the DriverP2 parameter:

1998

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. For disturbance records, suggested value is a minimum of 10 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

0

Meaning of the DriverP6 parameter:

Indicates the path where the COMTRADE files will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Comma-separated list with additional information about the relay to be used in the .hdr and .inf files. Format: FieldName1=value1,FieldName2=value2,etc. Example:

ID=123456,SerialNumber=A55GH77,Port=Ethernet

Meaning of the DriverP9 parameter:

Filename root for .hdr, .cfg, .dat and .inf files. If empty,

'XALSTOM_DisturbanceRecord.Relayxxx.hdr', 'XALSTOM_DisturbanceRecord.Relayxxx.cfg', ,

'XALSTOM_DisturbanceRecord.Relayxxx.dat' and 'XALSTOM_DisturbanceRecord.Relayxxx.inf' will be used, where xxx is the device unit address. Existing files with same name are overwritten.

Values that are returned:

Value in PointValue (0) = See the full list in the 'Get Disturbance Record' generic Courier command.

[EPAC 3000 Commands]

EPAC 3000 Commands

Get Last Disturbance Record from EPAC 3000

Description of this command:

Requests the slave device to send the last disturbance record available. Format of output files is COMTRADE ASCII. Both .cfg and .dat are generated according to IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems (IEEE Std C37.111-1999). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command resets the DIST flag, so after reading the disturbance record, a consecutive read will return that no record is available until a new record is actually available.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-11

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

35

Meaning of the DriverP2 parameter:

3998

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

0 = Use English format (MM/DD/YYYY hh:mm:ss.000)

1 = Use Spanish format (DD/MM/YYYY hh:mm:ss.000)

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Meaning of the DriverP4 parameter:

Indicates how many extra Poll Buffer retries should be attempted when the relay is busy, before abandoning the current transaction. Allowed values are 0 to 30. For disturbance records, suggested value is a minimum of 10 times. If a fixed value of 100 is added to this parameter, then a Reset Remote Link command is sent to the relay before any other telegram. This can be required by some relay models, such as P-142 and KCGG-140.

Meaning of the DriverP5 parameter:

0

Meaning of the DriverP6 parameter:

Indicates the path where the COMTRADE files will be generated. If this property is empty, the local driver folder is used by default.

Meaning of the DriverP7 parameter:

Additional delay in milliseconds before a Poll Buffer command is retried (0-300). If 0 or empty, a delay of 50 is assumed.

Meaning of the DriverP8 parameter:

Comma-separated list with additional information about the relay to be used in the .hdr and .inf files. Format: FieldName1=value1,FieldName2=value2,etc. Example:
ID=123456,SerialNumber=A55GH77,Port=Ethernet

Meaning of the DriverP9 parameter:

Filename root for .hdr, .cfg, .dat and .inf files. If empty, 'XALSTOM_DisturbanceRecord.Relayxxx.hdr', 'XALSTOM_DisturbanceRecord.Relayxxx.cfg', 'XALSTOM_DisturbanceRecord.Relayxxx.dat' and 'XALSTOM_DisturbanceRecord.Relayxxx.inf' will be used, where xxx is the device unit address. Existing files with same name are overwritten.

Values that are returned:

Value in PointValue (0) = See the full list in the 'Get Disturbance Record' generic Courier command.

Error messages

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

[1005] DRIVER (Internal): Invalid driver stage
[1006] DRIVER (Internal): Error transmitting command
[1008] DRIVER (Internal): Command execution requires a valid license
[1010] DRIVER (Internal): Error calculating elapsed milliseconds
[1011] DRIVER (Internal): Command not implemented
[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
[1214] DRIVER (System): Error deleting %s
[1300] PROTOCOL (Timeout): No answer
[1313] PROTOCOL (Timeout): No answer from meter after retrying with a Start Communications message
[1332] PROTOCOL (Remote): Invalid date received
[1333] PROTOCOL (Remote): Couldn't decode received date
[1334] PROTOCOL (Remote): Invalid time received
[1338] PROTOCOL (Remote): Couldn't decode reference date
[1353] DEVICE (Busy): Device still busy after the maximum number of poll buffer attempts
[1354] PROTOCOL (Remote): Unknown event record type
[1355] PROTOCOL (Format): Invalid datatype
[1357] REPLY (Format): Couldn't read column texts and values
[1358] REPLY (Format): Couldn't read cell strings
[1359] REPLY (Format): Couldn't read cell value
[1360] PROTOCOL (Remote): Error synchronizing device
[1361] REPLY (Format): Couldn't read cell values
[1362] PROTOCOL (Remote): Invalid block number sequence received
[1415] PROTOCOL (Format): Invalid response format
[1418] PROTOCOL (Format): Message to be transmitted is too long
[1427] PROTOCOL (Format): Unexpected response
[1428] PROTOCOL (Format): Unknown reply code

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[1433] PROTOCOL (Format): Validation error in device response
[1459] PROTOCOL (Format): Date and time information not received
[1467] PROTOCOL (Remote): Unknown date format in received event
[2193] CONFIG (NumValues): Too many values (max=19)
[2250] CONFIG (NumValues): Too many values requested (max=123)
[2251] CONFIG (NumValues): Too many values requested (max=139)
[2253] CONFIG (NumValues): Too many values requested (max=172)
[2253] CONFIG (NumValues): Too many values requested (max=34)
[2255] CONFIG (NumValues): Too many values requested (max=23)
[2256] CONFIG (NumValues): Too many values requested (max=29)
[2259] CONFIG (NumValues): Too many values requested (max=34)
[2260] CONFIG (NumValues): Too many values requested (max=37)
[2261] CONFIG (NumValues): Too many values requested (max=46)
[2267] CONFIG (NumValues): Too many values requested (max=76)
[2269] CONFIG (NumValues): Too many values requested (max=83)
[2297] CONFIG (NumValues): Too many values requested (max=33)
[2301] CONFIG (NumValues): Too many values (max=26)
[2302] CONFIG (NumValues): Invalid number of values (must be 9)
[3014] CONFIG (P0): Invalid device address (0-255)
[3022] CONFIG (P0): Invalid device address (1-255)
[3508] CONFIG (P1): Invalid command
[3594] CONFIG (P1): Invalid synchronization mode
[4029] CONFIG (P2): Invalid column (0-255)
[4097] CONFIG (P2): Invalid row number (0 to 255)
[4156] CONFIG (P2): Invalid row number (0-255)
[4519] CONFIG (P3): Invalid column number (0 to 255)
[4565] CONFIG (P3): Invalid row (0-255)
[4582] CONFIG (P3): Invalid validation mode (0-3)
[4600] CONFIG (P3): Invalid column number (0-255)
[5026] CONFIG (P4): Invalid number of retries when busy (0-30)
[5511] CONFIG (P5): Invalid row number (0-255)
[6014] CONFIG (P6): Invalid column number (0 to 255)
[6507] CONFIG (P7): Invalid delay for poll buffer retry (0-300)
[7001] CONFIG (P8): Invalid input number (-1 or 0-15)
[7002] CONFIG (P8): Invalid number of cells requested (max=63)
[7009] CONFIG (P8): List of cells was not defined
[7502] CONFIG (P9): Invalid input number (-1 or 0-15)
[8041] CONFIG (Remote): Cell cannot be read or written at the moment
[8050] CONFIG (Remote): Column should be subsequently re-read
[8056] CONFIG (Remote): Command failed
[8062] CONFIG (Remote): Command not known or not valid at this time
[8074] CONFIG (Remote): Couldn't enter in setting mode
[8075] CONFIG (Remote): Couldn't preload setting buffer
[8076] CONFIG (Remote): Couldn't verify input status
[8094] CONFIG (Remote): Device answer is different than expected
[8116] CONFIG (Remote): Error closing circuit breaker
[8126] CONFIG (Remote): Error opening circuit breaker
[8207] CONFIG (Remote): Setting is currently being changed by another user interface
[8213] CONFIG (Remote): Menu cell or column has no data
[8230] CONFIG (RemoteRemote): Non-specific error
[8262] CONFIG (Remote): Password is required to change setting
[8266] CONFIG (Remote): Positive acknowledgement
[8296] CONFIG (Remote): Remote control disabled or menu cell does not exist
[8335] CONFIG (Remote): This is not a settable/resettable cell or remote control is disabled
[8362] CONFIG (Remote): Invalid password or verify error on setting change
[8399] CONFIG (Remote): Couldn't preload password
[9505] CONFIG (Value): Invalid seconds in PointValue (0-59)
[9507] CONFIG (Value): Invalid year in PointValue (2000-2099)
[9508] CONFIG (Value): Invalid month in PointValue (1-12)
[9509] CONFIG (Value): Invalid day in PointValue (1-31)
[9510] CONFIG (Value): Invalid hour in PointValue (0-23)
[9511] CONFIG (Value): Invalid minutes in PointValue (0-59)

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[9512] CONFIG (Value): Invalid milliseconds in PointValue (0-999)
[9513] CONFIG (Value): Invalid day of week in PointValue (0-7)
[9514] CONFIG (Value): Invalid summertime in PointValue (0-1)

Supported devices

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

AREVA ALSTOM Relays KAVS-100
AREVA ALSTOM Relays KBCH-120
AREVA ALSTOM Relays KCEG-140
AREVA ALSTOM Relays KCGG-140
AREVA ALSTOM Relays KVGC-202
AREVA ALSTOM Relays MICOM P122
AREVA ALSTOM Relays MICOM P123
AREVA ALSTOM Relays MICOM P141
AREVA ALSTOM Relays MICOM P142
AREVA ALSTOM Relays MICOM P143
AREVA ALSTOM Relays MICOM M300
AREVA ALSTOM Relays EPAC 3000
AREVA ALSTOM Relays with IEC-870 Courier Protocol
AREVA ALSTOM EPAC 3000 6H
AREVA ALSTOM KCGG 140C
AREVA ALSTOM KCGG 140C CEC
AREVA ALSTOM KCGG 140C CED
AREVA ALSTOM KCGG 140C EEC
AREVA ALSTOM KCGG 140C EED
AREVA ALSTOM KCGG 140C F
AREVA ALSTOM KCGG 140C G
AREVA ALSTOM KCGG 140C J
AREVA ALSTOM KCGG 140C K
AREVA ALSTOM KCGG 142C
AREVA ALSTOM KCGG 142C CEA
AREVA ALSTOM KCGG 142C CEC
AREVA ALSTOM KCGG 142C EEA
AREVA ALSTOM KCGG 142C L
AREVA ALSTOM KCGG 142C M
AREVA ALSTOM KVTR 100
AREVA ALSTOM KVTR 100 AEC
AREVA ALSTOM KVTR 100 G
AREVA ALSTOM MICOM P122 3.D
AREVA ALSTOM MICOM P122 5.D
AREVA ALSTOM MICOM P122 6.G
AREVA ALSTOM MICOM P123 4.G
AREVA ALSTOM MICOM P123 6.E
AREVA ALSTOM MICOM P123 6.G
AREVA ALSTOM MICOM P127 11.B
AREVA ALSTOM MICOM P142 0050A
AREVA ALSTOM MICOM P142 0050N
AREVA ALSTOM MICOM P142 0400J
AREVA ALSTOM MICOM P142 0430J

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