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XSPABUS Driver Manual

ABB SPA-bus Communication Protocol Driver

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XSPABUS technical specifications

General information

The XSPABUS driver implements the SPA-bus communication protocol V2.5 that was originally designed as a fieldbus in a distributed protection, control and event reporting system. A SPA-bus system may incorporate slave units as protective relays, control units and alarm units connected over the SPA-bus to a master unit. In addition to this the bus can be used to transfer data to and from other units of a secondary equipment system in a substation of an electrical power network. The SPA bus uses an asynchronous serial communications protocol (1 start bit, 7 data bits, even parity, 1 stop bit) with data transfer rate of 9600 b/s. (In some cases a rate of 300, 1200, 2400 or 4800 bit/s can also be used).

Messages on the bus consist of ASCII characters.

The bus can support one master and several slaves.

The basic construction of the protocol assumes that the slave has no self-initiated need to talk to the master but the master is aware of the data contained in the slaves and, consequently, can request required data. In addition, the master can send data to the slave. Requesting by the master can be performed either by sequenced polling (e.g. for event information) or only on demand. The master requests slave information using request messages and sends information to the slave in write messages. Furthermore, the master can send all slaves in common a broadcast message containing time or other data.

This driver supports RS485 networking to connect multiple slave devices to a single computer.

This driver supports direct communication to a serial port.

Also supports tcp/ip communication through an ethernet-to-serial converter such as Moxa or Exemys, without needing to install a COM port redirector or creating a virtual COM port.

Command list

Generic SPA-bus Commands

Generic Read Command

Description of this command:

Reads information from the slave.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-250

Meaning of the DriverP0 parameter:

Unit Address (1-999, except 900).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:
0 = Use English format (MM/DD/YYYY)
1 = Use Spanish format (DD/MM/YYYY)

Meaning of the DriverP4 parameter:

Not used.

Meaning of the DriverP5 parameter:

Number of retries reading each item, before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

Comma-separated list of SPAid items to be read, using the format "fpp:e/eXm/m,fpp:e/eXm/m,fpp:e/eXm/m,..." where:

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- f = item data format to be applied to all values returned by the item, where:
 - d=date
 - t=time
 - s=string/text
 - f=floating point number
 - u=unsigned integer
 - i=integer
 - b=bit value as 0 or 1
 - a=bit value as active or inactive (example: a1)
 - A=bit value as Active or Inactive (example: A1)
 - l=bit value as high or low (example: l1)
 - L=bit value as High or Low (example: L1)
 - o=bit value as on or off (example: o1)
 - O=bit value as On or Off (example: O1)
 - y=bit value as yes or no (example: y1)
 - Y=bit value as Yes or No (example: Y1)
 - k=bit value as fail or ok (example: k1)
 - K=bit value as FAIL or OK (example: K1)
 - R=integer value 0=No direction,1=Forward,2=Reverse (example: R1)
- pp = number of points affected to this item (if the item returns more values than points, extra values are discarded. If it returns less values, points are filled with -1 and empty texts).
- e[/e] = first[/last] channel (optional). Range is 1-999 for each channel number. Use 0 for information common to all channels.
- X = Data category, where:
 - I=Input data
 - O=Output data
 - S=Setting values
 - V=Variables (internal)
 - M=Memory data
 - C=Slave status (conditions)
 - F=Slave identification
 - T=Time
 - D=Date and time
 - L=Last events
 - A=Alarms valid
- m[/m] = first[/last] data number (optional). Range is 1-999 for each data number.
- Example = s01:F,f01:0V205,s01:3V20

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Important note:

Consider that each item may return several values, so DriverNumPoints should be big enough to receive all values.

Values that are returned:

Value in PointValue (0) = First numeric data returned by first item

Text in PointText (0) = First text data returned by first item

...

Value in PointValue (DriverNumPoints-1) = Last numeric data returned by last item

Text in PointText (DriverNumPoints-1) = Last text data returned by last item

Get Channel Last Fault

Description of this command:

Requests the slave to send the analog fault values for a particular channel in a disturbance record that correspond to the newest, oldest or a selected record number. This command automatically forces a minimum timeout of 10000 ms.

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).

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Meaning of the DriverP1 parameter:

8

Meaning of the DriverP2 parameter:

Record index to be analyzed where: 0=newest and 7=oldest. -2 = Oldest record -1 = Newest record
0-200 = Record index to download

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:

Channel number to be obtained (0-9), where:
0 = U1/UL1
1 = I1/IL1
2 = U2/UL2
3 = I2/IL2
4 = U3/UL3
5 = I3/IL3
6 = U4/UL4
7 = I4/IL4
8 = U5/UL5
9 = I5/IL5

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

REL vX.X version:
11 = v1.1
12 = v1.2
20 = v2.0

Meaning of the DriverP7 parameter:

Not used.

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Channel Number (1-10)
Text in PointText (1) = Channel Name
Text in PointText (2) = Scale Factor (for example: 600.0/1.000 A)
Text in PointText (3) = Trig Low (for example: 80)
Text in PointText (4) = Trig Low On (Yes/No)
Text in PointText (5) = Trig High (for example: 120)
Text in PointText (6) = Trig High On (Yes/No)
Text in PointText (7) = Trig
Text in PointText (8) = Trig Value (for example: -57)
Text in PointText (9) = RMS Prefault (for example: 167/348)
Text in PointText (10) = RMS Fault (for example: 120/67)
Text in PointText (11) = Active (Yes/No)
Text in PointText (12) = Prefault voltage angle, in degrees (for example: 0.000)
Text in PointText (13) = Fault voltage angle, in degrees (for example: 0.204)
Text in PointText (14) = Signal resolution (for example: 0.005)

Read Events

Description of this command:

Requests the slave to send events for a specific disturbance record starting at address 62M1, up to 62Mn, where n is the first empty event. Also requests the slave to send the internal events starting at address 3M1, up to 3M40. This command automatically forces a minimum timeout of 10000 ms.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1

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Meaning of the DriverP0 parameter:

Unit Address (1-999, except 900).

Meaning of the DriverP1 parameter:

7

Meaning of the DriverP2 parameter:

Indicate what event types must be downloaded:

0 = All events

1 = Only disturbance record events

2 = Only internal events

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:

Last internal event index to be downloaded (1-40). Use 0 for all events.

Meaning of the DriverP5 parameter:

Number of retries reading each event, before discarding the whole communication.

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:

Delete event file if it exists (0=No, 1=Yes).

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Filename for event file. If empty, 'XSPABUS_Events.Relayxxx.txt' will be used, where xxx is the protection 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 (n/a if no events extracted).

Get Disturbance Record List

Description of this command:

Returns a list of disturbance records available, ordered by date and time, newest first. Record number is returned in PointValue and disturbance date and 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'.

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:

1

Meaning of the DriverP2 parameter:

Not used.

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:

Not used.

Meaning of the DriverP5 parameter:

Number of retries reading each item before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

Not used.

Meaning of the DriverP8 parameter:

Not used.

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Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Value in PointValue (0) = Newest disturbance record number

Text in PointText (0) = Date and time of newest disturbance record

- ...

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

Value in PointValue (DriverNumPoints-1) = Date and time of oldest disturbance record

Get Disturbance Record Information

Description of this command:

Requests the slave to send information about a disturbance record that correspond to the newest, oldest or a selected record number. This command automatically forces a minimum timeout of 10000 ms.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-13

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

9

Meaning of the DriverP2 parameter:

Record index to be analyzed where: 0=newest and 7=oldest. -2 = Oldest record -1 = Newest record
0-200 = Record index to download

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

Not used.

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Fault date (MM/DD/YYYY or DD/MM/YYYY)

Text in PointText (1) = Fault time (hh:mm:ss.000)

Text in PointText (2) = Fault disturbance index

Text in PointText (3) = Fault disturbance sequence number

Text in PointText (4) = Fault trig signal (for example: DISP IOC)

Text in PointText (5) = Fault recording mode of disturbance

Text in PointText (6) = Fault CT Earth (1=In, 0=Out)

Text in PointText (7) = Fault distance status (0=OK, 1=Error, -1=Not applicable)

Text in PointText (8) = Fault loop (0=Not valid, 1=L1-N, 2=L2-N, 3=L3-N, 4=L1-L2, 5=L2-L3, 6=L3-L1, -1=Not applicable)

Text in PointText (9) = Fault distance (-1=Not applicable)

Text in PointText (10) = Fault direction (0=Not valid, 1=Forward, 2=Forward beyond range, -1=Not applicable)

Text in PointText (11) = Fault line length unit (0=Km, 1=Mile, -1=Not applicable)

Text in PointText (12) = Fault line length (-1=Not applicable)

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Download Disturbance Record

Description of this command:

Requests the slave to send the complete disturbance record information that correspond to the newest, oldest or a selected record number. 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 (1991 format). Additional .hdr and .inf files are generated, and can include user-supplied information through the DriverP8 parameter. This command automatically forces a minimum timeout of 10000 ms.

Methods used to run this command:

Analog Input (ReadNumericValues)

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:

Record index to be downloaded where: 0=newest and 7=oldest. -2 = Oldest record -1 = Newest record 0-200 = Record index to download

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:

REL vX.X version:

11 = v1.1

12 = v1.2

20 = v2.0

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

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 protection. 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 protection 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,

'XSPABUS_DisturbanceRecord.Relayxxx.hdr', 'XSPABUS_DisturbanceRecord.Relayxxx.cfg', ,

'XSPABUS_DisturbanceRecord.Relayxxx.dat' and 'XSPABUS_DisturbanceRecord.Relayxxx.inf'

will be used, where xxx is the protection 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) = Record number

Value in PointValue (2) = Frequency

Value in PointValue (3) = First sample (always 0)

Value in PointValue (4) = Trigger point

Value in PointValue (5) = Number of samples

Value in PointValue (6) = Number of analog channels

Value in PointValue (7) = Number of digital channels

Text in PointText (0) = Download status

Text in PointText (1) = Record number (text version, can be 'n/a' when report is not available))

Text in PointText (2) = Device Identification

Text in PointText (3) = First sample time

Text in PointText (4) = Trigger time

Text in PointText (5) = Last sample time

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Text in PointText (6) = Comma-separated list of analog channel names
Text in PointText (7) = Comma-separated list of first 10 digital channel names

Synchronize

Description of this command:

Sets a new time in the slave using the PC clock date and time.

If the minute-pulse synchronization or the second-pulse synchronization is activated, the relay's real-time clock will be rounded to the nearest whole second or minute, depending on whether second- or minute-pulse synchronization is used. In this case, only year-month-day-hour-minute or year-month-day-hour-minute-second will be written.

Following are the tested v1.x settings to allow full synchronization through SPABUS, that are set through the Configuration+Time HMI menu and/or CAP540:

- TimeSyncSource=None

Following are the tested v2.0 settings to allow full synchronization through SPABUS, that are set through the Configuration+Time HMI menu and/or CAP540:

- TIME-MINSYNC=NoneSignals NONE-SIGNAL
- TimeSyncSource=SPA
- Time Format =yy-mm-dd hh.mm.ss.mmm

This command follows this procedure:

- Reads the current date and time from the slave.
- Compares the received slave date and time (plus the estimated reading delay indicated in DriverP6) 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 sends the current PC clock date and time (plus the estimated transmission delay indicated in DriverP7) to the slave.
- After synchronization, reads back the new date and time from the slave.
- Compares the received slave date and time (plus the estimated reading delay indicated in DriverP6) 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

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 slave clock to be out of the allowed difference:

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

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

12 = If not successful, a broadcast synchronization command is sent to all slaves (using slave address 900) 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:

Not used.

Meaning of the DriverP5 parameter:

Number of retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Estimated communication delay when reading date and time from the slave, in milliseconds. This delay has to do with the communication link and compensates the elapsed time between the

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moment the slave transmits the telegram with its date and time and the moment the telegram is received and processed by the driver.

Meaning of the DriverP7 parameter:

Estimated communication delay when transmitting date and time to the slave, 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 slave.

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

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 the broadcast command sent to all slaves (if it was necessary).

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) = Slave date and time received when starting communication.

Text in PointText (3) = Slave 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).

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

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

[REL 511 V1.1/1.2 Commands]

REL 511 V1.1/1.2 Commands

Read Status and DateTime

Description of this command:

Requests the slave to send Status and DateTime information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-7

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

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Meaning of the DriverP7 parameter:

K02:3O1/2, @01:3O20, @01:3O21, @01:3O22, s02:0V1/2

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Self Supervision InternalStatus
Text in PointText (1) = Self Supervision CPU-Status
Text in PointText (2) = HMI-LEDs StatGreenLED (READY)
Text in PointText (3) = HMI-LEDs StatYellowLED (START)
Text in PointText (4) = HMI-LEDs StatRedLed (TRIP)
Text in PointText (5) = Date and Time Date (yymodd)
Text in PointText (6) = Date and Time HourMinute (hh.mm)

Read System Supervision

Description of this command:

Requests the slave to send System Supervision information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-3

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:5O100, s01:5O105, s01:5O130

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = SSUP (System Supervision) TROL
Text in PointText (1) = SSUP (System Supervision) TRBC
Text in PointText (2) = SSUP (System Supervision) TRLV

Read Fuse Failure

Description of this command:

Requests the slave to send Fuse Failure information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-3

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

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Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s03:5095/97

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = FUSE (Fuse Failure) VTF3PH

Text in PointText (1) = FUSE (Fuse Failure) VTSU

Text in PointText (2) = FUSE (Fuse Failure) VTSZ

Read Sync Source

Description of this command:

Requests the slave to send Sync Source information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

@01:53S190,@01:54V1

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = TIME-MINSYNC

Text in PointText (1) = TimeSynchronisationSource

Read I/O Module B

Description of this command:

Requests the slave to send I/O Module B information.

Methods used to run this command:

Analog Input (ReadNumericValues)

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Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:5O195,s04:6I1/4

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O ModB Status / ERROR

Text in PointText (1) = I/O ModB Inp01 / IOB-BI1

Text in PointText (2) = I/O ModB Inp02 / IOB-BI2

Text in PointText (3) = I/O ModB Inp03 / IOB-BI3

Text in PointText (4) = I/O ModB Inp04 / IOB-BI4

Read I/O Module 1

Description of this command:

Requests the slave to send I/O Module 1 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-9

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:5O196,s01:6I101,s01:6I102,s01:6I103,s01:6I104,s01:6I105,s01:6I106,s01:6I107,s01:6I108

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod1 Status / ERROR

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Text in PointText (1) = I/O Mod1 Inp01 / IO1-BI1
Text in PointText (2) = I/O Mod1 Inp02 / IO1-BI2
Text in PointText (3) = I/O Mod1 Inp03 / IO1-BI3
Text in PointText (4) = I/O Mod1 Inp04 / IO1-BI4
Text in PointText (5) = I/O Mod1 Inp05 / IO1-BI5
Text in PointText (6) = I/O Mod1 Inp06 / IO1-BI6
Text in PointText (7) = I/O Mod1 Inp07 / IO1-BI7
Text in PointText (8) = I/O Mod1 Inp08 / IO1-BI8

Read I/O Module 2

Description of this command:

Requests the slave to send I/O Module 2 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-9

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:5O197,s01:6I201,s01:6I202,s01:6I203,s01:6I204,s01:6I205,s01:6I206,s01:6I207,s01:6I208

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod2 Status / ERROR

Text in PointText (1) = I/O Mod2 Inp01 / IO2-BI1

Text in PointText (2) = I/O Mod2 Inp02 / IO2-BI2

Text in PointText (3) = I/O Mod2 Inp03 / IO2-BI3

Text in PointText (4) = I/O Mod2 Inp04 / IO2-BI4

Text in PointText (5) = I/O Mod2 Inp05 / IO2-BI5

Text in PointText (6) = I/O Mod2 Inp06 / IO2-BI6

Text in PointText (7) = I/O Mod2 Inp07 / IO2-BI7

Text in PointText (8) = I/O Mod2 Inp08 / IO2-BI8

Read I/O Module 3

Description of this command:

Requests the slave to send I/O Module 3 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

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Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:50198

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod3 Status / ERROR

Read I/O Module 4

Description of this command:

Requests the slave to send I/O Module 4 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:50199

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod4 Status / ERROR

Read I/O Module 5

Description of this command:

Requests the slave to send I/O Module 5 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:50200

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod5 Status / ERROR

Read Identity No. Identification

Description of this command:

Requests the slave to send Identity No. Identification information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:0F,s03:3V10/12,s01:0V205

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Identification TypeDes

Text in PointText (1) = Identification TermTypeVers

Text in PointText (2) = Identification TypeDesDistRec

Text in PointText (3) = Identification DateOfProd (yy-mo-dd)

Text in PointText (4) = Identification ProgVersNo

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Read Identity No. Observed

Description of this command:

Requests the slave to send Identity No. Observed information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-7

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:3V19,s01:3V20,s01:3V21,s01:3V22,s01:3V23,s01:3V24,s01:3V25

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Observed OrderingNo

Text in PointText (1) = Observed SerialNo

Text in PointText (2) = Observed SW-version

Text in PointText (3) = Observed CPU-module

Text in PointText (4) = Observed IO-mod0B

Text in PointText (5) = Observed IO-mod01

Text in PointText (6) = Observed IO-mod02

Read Identity No. Noted

Description of this command:

Requests the slave to send Identity No. Noted information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-4

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

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Meaning of the DriverP7 parameter:

s01:3S1,s01:3S2,s01:3S3,s01:3S4

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Noted Trafo Module

Text in PointText (1) = Noted ADC Module

Text in PointText (2) = Noted HMI Module

Text in PointText (3) = Noted Mechanical Frame

Read Terminal Identifiers

Description of this command:

Requests the slave to send Terminal Identifiers information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-6

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:49S1,s01:49S2,s01:49S3,s01:49S4,s01:49S5,s01:49S6

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Terminal Identifiers Station Name

Text in PointText (1) = Terminal Identifiers Station No

Text in PointText (2) = Terminal Identifiers Object Name

Text in PointText (3) = Terminal Identifiers Object No

Text in PointText (4) = Terminal Identifiers Unit Name

Text in PointText (5) = Terminal Identifiers Unit No

Read Service Values

Description of this command:

Requests the slave to send Service Values information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

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Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:7I1,s01:7I2,s01:7I3,s01:7I4,s01:7I5

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Service Value U (KV)

Text in PointText (1) = Service Value I (A)

Text in PointText (2) = Service Value P (MW)

Text in PointText (3) = Service Value Q (MVA_r)

Text in PointText (4) = Service Value f (Hz)

Read Primary Magnitude Values

Description of this command:

Requests the slave to send Primary Magnitude Values information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:7I31,s01:7I33,s01:7I35,s01:7I37,s01:7I39,s01:7I41,s01:7I43,s01:7I45,s01:7I47,s01:7I49

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Primary Magnitude UL1 (KV)

Text in PointText (1) = Primary Magnitude UL2 (KV)

Text in PointText (2) = Primary Magnitude UL3 (KV)

Text in PointText (3) = Primary Magnitude U4 (KV)

Text in PointText (4) = Primary Magnitude U5 (KV)

Text in PointText (5) = Primary Magnitude IL1 (A)

Text in PointText (6) = Primary Magnitude IL2 (A)

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Text in PointText (7) = Primary Magnitude IL3 (A)
Text in PointText (8) = Primary Magnitude IN (A)
Text in PointText (9) = Primary Magnitude I5 (A)

Read Secondary Magnitude Values

Description of this command:

Requests the slave to send Secondary Magnitude Values information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:7111,s01:7113,s01:7115,s01:7117,s01:7119,s01:7121,s01:7123,s01:7125,s01:7127,s01:7129

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Secondary Magnitude UL1 (V)

Text in PointText (1) = Secondary Magnitude UL2 (V)

Text in PointText (2) = Secondary Magnitude UL3 (V)

Text in PointText (3) = Secondary Magnitude U4 (V)

Text in PointText (4) = Secondary Magnitude U5 (V)

Text in PointText (5) = Secondary Magnitude IL1 (A)

Text in PointText (6) = Secondary Magnitude IL2 (A)

Text in PointText (7) = Secondary Magnitude IL3 (A)

Text in PointText (8) = Secondary Magnitude IN (A)

Text in PointText (9) = Secondary Magnitude I5 (A)

Read Direction Values

Description of this command:

Requests the slave to send Direction Values information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-3

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

R01:7I60,R01:7I61,R01:7I62

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Direction L1-L2

Text in PointText (1) = Direction L2-L3

Text in PointText (2) = Direction L3-L1

Read Angle Values

Description of this command:

Requests the slave to send Angle Values information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:7I12,s01:7I14,s01:7I16,s01:7I18,s01:7I20,s01:7I22,s01:7I24,s01:7I26,s01:7I28,s01:7I30

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Angles UL1 (Deg)

Text in PointText (1) = Angles UL2 (Deg)

Text in PointText (2) = Angles UL3 (Deg)

Text in PointText (3) = Angles U4 (Deg)

Text in PointText (4) = Angles U5 (Deg)

Text in PointText (5) = Angles IL1 (Deg)

Text in PointText (6) = Angles IL2 (Deg)

Text in PointText (7) = Angles IL3 (Deg)

Text in PointText (8) = Angles IN (Deg)

Text in PointText (9) = Angles I5 (Deg)

[REL 511 V2.0 Commands]

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REL 511 V2.0 Commands

Read Status and DateTime

Description of this command:

Requests the slave to send Status and DateTime information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-7

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K02:3O1/2,@01:3O20,@01:3O21,@01:3O22,s02:0V1/2

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Self Supervision InternalStatus

Text in PointText (1) = Self Supervision CPU-Status

Text in PointText (2) = HMI-LEDs StatGreenLED (READY)

Text in PointText (3) = HMI-LEDs StatYellowLED (START)

Text in PointText (4) = HMI-LEDs StatRedLed (TRIP)

Text in PointText (5) = Date and Time Date (yymodd)

Text in PointText (6) = Date and Time HourMinute (hh.mm)

Read System Supervision

Description of this command:

Requests the slave to send System Supervision information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-3

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

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Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:50100,s01:50105,s01:50130

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = SSUP (System Supervision) TROL

Text in PointText (1) = SSUP (System Supervision) TRBC

Text in PointText (2) = SSUP (System Supervision) TRLV

Read Fuse Failure

Description of this command:

Requests the slave to send Fuse Failure information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-3

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s03:5095/97

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = FUSE (Fuse Failure) VTF3PH

Text in PointText (1) = FUSE (Fuse Failure) VTSU

Text in PointText (2) = FUSE (Fuse Failure) VTSZ

Read CT Supervision

Description of this command:

Requests the slave to send CT Supervision information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s02:50107/108

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = CTSU (CT Supervision) FAIL

Text in PointText (1) = CTSU (CT Supervision) ALARM

Read Sync Source

Description of this command:

Requests the slave to send Sync Source information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

@01:53S190,@01:54V1

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = TIME-MINSYNC

Text in PointText (1) = TimeSynchronisationSource

Read I/O Module 1

Description of this command:

Requests the slave to send I/O Module 1 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:6I125

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod1 Status / ERROR

Read I/O Module 2

Description of this command:

Requests the slave to send I/O Module 2 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-9

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:6I225,b04:4O31/34,b04:6I201/204

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod2 Status / ERROR

Text in PointText (1) = I/O Mod2 Out01 / IO2-BO1

Text in PointText (2) = I/O Mod2 Out02 / IO2-BO2

Text in PointText (3) = I/O Mod2 Out03 / IO2-BO3

Text in PointText (4) = I/O Mod2 Out04 / IO2-BO4

Text in PointText (5) = I/O Mod2 Inp01 / IO2-BI1

Text in PointText (6) = I/O Mod2 Inp02 / IO2-BI2

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Text in PointText (7) = I/O Mod2 Inp03 / IO2-BI3
Text in PointText (8) = I/O Mod2 Inp04 / IO2-BI4

Read I/O Module 3

Description of this command:

Requests the slave to send I/O Module 3 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-21

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:6I325,b08:4O61/68,b04:4O69/72,b08:6I301/308

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod3 Status / ERROR

Text in PointText (1) = I/O Mod3 Out01 / IO3-BO1

Text in PointText (2) = I/O Mod3 Out02 / IO3-BO2

Text in PointText (3) = I/O Mod3 Out03 / IO3-BO3

Text in PointText (4) = I/O Mod3 Out04 / IO3-BO4

Text in PointText (5) = I/O Mod3 Out05 / IO3-BO5

Text in PointText (6) = I/O Mod3 Out06 / IO3-BO6

Text in PointText (7) = I/O Mod3 Out07 / IO3-BO7

Text in PointText (8) = I/O Mod3 Out08 / IO3-BO8

Text in PointText (9) = I/O Mod3 Out09 / IO3-BO9

Text in PointText (10) = I/O Mod3 Out10 / IO3-BO10

Text in PointText (11) = I/O Mod3 Out11 / IO3-BO11

Text in PointText (12) = I/O Mod3 Out12 / IO3-BO12

Text in PointText (13) = I/O Mod3 Inp01 / IO3-BI1

Text in PointText (14) = I/O Mod3 Inp02 / IO3-BI2

Text in PointText (15) = I/O Mod3 Inp03 / IO3-BI3

Text in PointText (16) = I/O Mod3 Inp04 / IO3-BI4

Text in PointText (17) = I/O Mod3 Inp05 / IO3-BI5

Text in PointText (18) = I/O Mod3 Inp06 / IO3-BI6

Text in PointText (19) = I/O Mod3 Inp07 / IO3-BI7

Text in PointText (20) = I/O Mod3 Inp08 / IO3-BI8

Read I/O Module 4

Description of this command:

Requests the slave to send I/O Module 4 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

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Number of points accepted by this command:

1-21

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:6I425,b08:4O91/98,b04:4O99/102,b08:6I401/408

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod4 Status / ERROR

Text in PointText (1) = I/O Mod4 Out01 / IO4-BO1

Text in PointText (2) = I/O Mod4 Out02 / IO4-BO2

Text in PointText (3) = I/O Mod4 Out03 / IO4-BO3

Text in PointText (4) = I/O Mod4 Out04 / IO4-BO4

Text in PointText (5) = I/O Mod4 Out05 / IO4-BO5

Text in PointText (6) = I/O Mod4 Out06 / IO4-BO6

Text in PointText (7) = I/O Mod4 Out07 / IO4-BO7

Text in PointText (8) = I/O Mod4 Out08 / IO4-BO8

Text in PointText (9) = I/O Mod4 Out09 / IO4-BO9

Text in PointText (10) = I/O Mod4 Out10 / IO4-BO10

Text in PointText (11) = I/O Mod4 Out11 / IO4-BO11

Text in PointText (12) = I/O Mod4 Out12 / IO4-BO12

Text in PointText (13) = I/O Mod4 Inp01 / IO4-BI1

Text in PointText (14) = I/O Mod4 Inp02 / IO4-BI2

Text in PointText (15) = I/O Mod4 Inp03 / IO4-BI3

Text in PointText (16) = I/O Mod4 Inp04 / IO4-BI4

Text in PointText (17) = I/O Mod4 Inp05 / IO4-BI5

Text in PointText (18) = I/O Mod4 Inp06 / IO4-BI6

Text in PointText (19) = I/O Mod4 Inp07 / IO4-BI7

Text in PointText (20) = I/O Mod4 Inp08 / IO4-BI8

Read I/O Module 5

Description of this command:

Requests the slave to send I/O Module 5 information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-1

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

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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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

K01:6I525

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = I/O Mod5 Status / ERROR

Read Identity No. Identification

Description of this command:

Requests the slave to send Identity No. Identification information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:0F,s03:3V10/12,s01:0V205

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Identification TypeDes

Text in PointText (1) = Identification TermTypeVers

Text in PointText (2) = Identification TypeDesDistRec

Text in PointText (3) = Identification DateOfProd (yy-mo-dd)

Text in PointText (4) = Identification ProgVersNo

Read Identity No. Observed

Description of this command:

Requests the slave to send Identity No. Observed information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-10

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Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s02:3V20/21,s03:3V25/27,s05:3V38/42

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Observed SerialNo

Text in PointText (1) = Observed SW-version

Text in PointText (2) = Observed IO-mod02

Text in PointText (3) = Observed IO-mod03

Text in PointText (4) = Observed IO-mod04

Text in PointText (5) = Observed IDENT_IOPOS01

Text in PointText (6) = Observed IDENT_IOPOS02

Text in PointText (7) = Observed IDENT_IOPOS03

Text in PointText (8) = Observed IDENT_IOPOS04

Text in PointText (9) = Observed IDENT_IOPOS05

Read Terminal Identifiers

Description of this command:

Requests the slave to send Terminal Identifiers information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-6

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s01:49S1,s01:49S2,s01:49S3,s01:49S4,s01:49S5,s01:49S6

Meaning of the DriverP8 parameter:

Not used.

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Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Terminal Identifiers Station Name
Text in PointText (1) = Terminal Identifiers Station No
Text in PointText (2) = Terminal Identifiers Object Name
Text in PointText (3) = Terminal Identifiers Object No
Text in PointText (4) = Terminal Identifiers Unit Name
Text in PointText (5) = Terminal Identifiers Unit No

Read Service Values

Description of this command:

Requests the slave to send Service Values information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-5

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s05:711/5

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Service Value U (KV)
Text in PointText (1) = Service Value I (A)
Text in PointText (2) = Service Value P (MW)
Text in PointText (3) = Service Value Q (MVA)
Text in PointText (4) = Service Value f (Hz)

Read Primary Magnitude Values

Description of this command:

Requests the slave to send Primary Magnitude Values information.

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:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

Meaning of the DriverP3 parameter:

Indicates the format for returned dates:

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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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s03:716/8,s01:7131,s01:7112,s01:7133,s01:7114,s01:7135,s01:7116,s01:7137,s01:7118,s01:7139,s01:7120,s01:7141,s01:7122,s01:7143,s01:7124,s01:7145,s01:7126,s01:7147,s01:7128,s01:7149,s01:7130

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Primary Magnitude U1U2 (KV)
Text in PointText (1) = Primary Magnitude U2U3 (KV)
Text in PointText (2) = Primary Magnitude U3U1 (KV)
Text in PointText (3) = Primary Magnitude U1 (KV)
Text in PointText (4) = Primary Magnitude U1Angle (Deg)
Text in PointText (5) = Primary Magnitude U2 (KV)
Text in PointText (6) = Primary Magnitude U2Angle (Deg)
Text in PointText (7) = Primary Magnitude U3 (KV)
Text in PointText (8) = Primary Magnitude U3Angle (Deg)
Text in PointText (9) = Primary Magnitude U4 (KV)
Text in PointText (10) = Primary Magnitude U4Angle (Deg)
Text in PointText (11) = Primary Magnitude U5 (KV)
Text in PointText (12) = Primary Magnitude U5Angle (Deg)
Text in PointText (13) = Primary Magnitude I1 (A)
Text in PointText (14) = Primary Magnitude I1Angle (Deg)
Text in PointText (15) = Primary Magnitude I2 (A)
Text in PointText (16) = Primary Magnitude I2Angle (Deg)
Text in PointText (17) = Primary Magnitude I3 (A)
Text in PointText (18) = Primary Magnitude I3Angle (Deg)
Text in PointText (19) = Primary Magnitude I4 (A)
Text in PointText (20) = Primary Magnitude I4Angle (Deg)
Text in PointText (21) = Primary Magnitude I5 (A)
Text in PointText (22) = Primary Magnitude I5Angle (Deg)

Read Secondary Magnitude Values

Description of this command:

Requests the slave to send Secondary Magnitude Values information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-20

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

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Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s08:7111/18,s08:7119/26,s04:7127/30

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Secondary Magnitude U1 (V)
Text in PointText (1) = Secondary Magnitude U1Angle (Deg)
Text in PointText (2) = Secondary Magnitude U2 (V)
Text in PointText (3) = Secondary Magnitude U2Angle (Deg)
Text in PointText (4) = Secondary Magnitude U3 (V)
Text in PointText (5) = Secondary Magnitude U3Angle (Deg)
Text in PointText (6) = Secondary Magnitude U4 (V)
Text in PointText (7) = Secondary Magnitude U4Angle (Deg)
Text in PointText (8) = Secondary Magnitude U5 (V)
Text in PointText (9) = Secondary Magnitude U5Angle (Deg)
Text in PointText (10) = Secondary Magnitude I1 (A)
Text in PointText (11) = Secondary Magnitude I1Angle (Deg)
Text in PointText (12) = Secondary Magnitude I2 (A)
Text in PointText (13) = Secondary Magnitude I2Angle (Deg)
Text in PointText (14) = Secondary Magnitude I3 (A)
Text in PointText (15) = Secondary Magnitude I3Angle (Deg)
Text in PointText (16) = Secondary Magnitude I4 (A)
Text in PointText (17) = Secondary Magnitude I4Angle (Deg)
Text in PointText (18) = Secondary Magnitude I5 (A)
Text in PointText (19) = Secondary Magnitude I5Angle (Deg)

Read Impedance Values

Description of this command:

Requests the slave to send Impedance Values information.

Methods used to run this command:

Analog Input (ReadNumericValues)

Number of points accepted by this command:

1-9

Meaning of the DriverP0 parameter:

Unit Address (1-255).

Meaning of the DriverP1 parameter:

0

Meaning of the DriverP2 parameter:

Indicates if the checksum must be omitted in telegrams (0=no, 1=yes).

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:

Not used.

Meaning of the DriverP5 parameter:

Number of data request retries before discarding the whole communication.

Meaning of the DriverP6 parameter:

Not used.

Meaning of the DriverP7 parameter:

s06:71850/855,R03:71856/858

Meaning of the DriverP8 parameter:

Not used.

Meaning of the DriverP9 parameter:

Not used.

Values that are returned:

Text in PointText (0) = Impedance XL1 (ohms)

Text in PointText (1) = Impedance RL1 (ohms)

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Text in PointText (2) = Impedance XL2 (ohms)
Text in PointText (3) = Impedance RL2 (ohms)
Text in PointText (4) = Impedance XL3 (ohms)
Text in PointText (5) = Impedance RL3 (ohms)
Text in PointText (6) = Impedance L1
Text in PointText (7) = Impedance L2
Text in PointText (8) = Impedance L3

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
[1007] DRIVER (Internal): Code logic error
[1008] DRIVER (Internal): Command execution requires a valid license
[1010] DRIVER (Internal): Error calculating elapsed milliseconds
[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
[1318] PROTOCOL (Remote): Unexpected response from remote device
[1319] REPLY (Remote): Too many NAK BUSY or unexpected telegrams received
[1320] REPLY (Remote): Error in checksum or parity
[1321] REPLY (Remote): Slave busy
[1322] REPLY (Remote): Overflow of slave input buffer
[1323] REPLY (Remote): Message from master too complicated for the slave or requested PID does not exist in device
[1324] REPLY (Remote): Error reserved for use in higher levels of the communication network
[1325] REPLY (Remote): Syntax error
[1326] REPLY (Remote): Slave does not contain the data requested in the message
[1327] REPLY (Remote): Addressed data is impossible to write or read
[1328] REPLY (Remote): Data in write message not validated
[1329] REPLY (Remote): Undefined negative acknowledgment
[1330] REPLY (Remote): Unknown error code received in NAK telegram
[1331] REPLY (Remote): Disturbance index out of range 0-200
[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
[1350] PROTOCOL (Remote): Reply from different unit address
[1360] PROTOCOL (Remote): Error synchronizing device
[1364] REPLY (Remote): Record number not available in remote device
[1366] REPLY (Remote): Too many analog fault values received
[1367] REPLY (Remote): Too many analog samples received
[1368] REPLY (Remote): Unexpected number of analog samples received
[1433] PROTOCOL (Format): Validation error in device response
[2001] CONFIG (DataType): Analog outputs are not supported by this driver
[2002] CONFIG (DataType): Digital inputs are not supported by this driver
[2203] CONFIG (NumValues): Too many values (max=250)
[2311] CONFIG (List): Invalid format of item list
[2311] CONFIG (List): Invalid item format in item list
[2313] CONFIG (List): Invalid number of points in item list (1-99)
[3022] CONFIG (P0): Invalid device address (1-255)
[3056] CONFIG (P0): Invalid device address (1-999, except 900)
[3508] CONFIG (P1): Invalid command
[3594] CONFIG (P1): Invalid synchronization mode
[4158] CONFIG (P2): Invalid record number (0-7)

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[5049] CONFIG (P4): Invalid channel number (0-9)
[5051] CONFIG (P4): Invalid internal event number (1-40)

Supported devices

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

ABB REx 5xx 1.x
ABB REL 5xx 2.x
ABB REL 511 1.1
ABB REL 501 1.2 Low-end Line Terminal
ABB REL 511 1.2 Low-end Line Terminal
ABB REL 521 1.2 Medium-end Line Terminal
ABB REL 551 1.2 Low-end Line Differential Terminal
ABB REL 561 1.2 Line Differential Terminal
ABB REB 551 1.2 Breaker Terminal
ABB REL 511 2.0
ABB REL 511 2.3
ABB REL 511 2.5

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