Industrial communication solutions for Windows

XMITSUFX Driver Manual

Mitsubishi PLC FX Series Protocol Driver

Contents

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XMITSUFX technical specifications

General information

XMITSUFX driver allows you to connect to the MITSUBISHI programmable controllers, series FX, through an RS-422 to RS-232C interface unit. The recommended interface is the FX-232AW unit, although any standard 232/422 converter can be good to communicate with the PLC through the base unit programming connector.

Protocol specifications:
Transfer format: RS232C standard, asynchronous bi-directional (not simultaneously) Baud rate: 9600 bps Parity: Even Verification: Sum check Characters: ASCII, plus STX, ETX, ENQ, ACK and NAK.

Important note:
If you cannot communicate or if you are using RS-485 to connect to the device, you should set the RTS signal during the communication. This can be done by setting the RTSEnable argument when calling the read and write methods. If you still cannot communicate, check that your RS-485 cables are not inverted.

Inaccessible Areas:
The constant K setting of timer and counter coils in the program area are not accessable via the interface. Use data registers to store the setting if this function is desired.
File registers D1000 to D1999 are stored in the program memory area. Thus they are not accessable via this interface. Normally, their data has to be read to normal data registers before any process can be made anyway.

Command list

Read Words of type T, C or D

Description of this command:
Reads multiple current values of consecutive words of type T (Timers), C (Counters) or D (Data registers). The PLC can be in STOP or in RUN mode.

Methods used to run this command:
Analog Input

Number of points accepted by this command:
1-32

Meaning of the DriverP0 parameter:
0

Meaning of the DriverP6 parameter:
Determines the address of the first timer, counter or data register to be read. Valid addresses are:
- T0 to T255 for timers.
- C0 to C199 for counters.
- D0 to D511 for data registers.
- D8000 to D8255 for special data registers.

Important note:
Parameters P1 to P5 and P7 to P9 are not used.

Values that are returned:
Value in PointValue (0) = First word value (0-65535)
Value in PointValue (1) = Second word value (0-65535) .
Value in PointValue (DriverNumPoints-1) = Last word value (0-65535)

Read Bits of type X, Y, M, S, T or C

Description of this command:
Reads multiple current status of consecutive bits of type X, Y, M, S, T, C (Contacts and coils). Bits are read in groups of 8. The PLC can be in STOP or in RUN mode.

Methods used to run this command:
Digital Input

Number of points accepted by this command:
  1-256
Meaning of the DriverP0 parameter:
  0
Meaning of the DriverP6 parameter:
  Determines the address of the first group of 8 bits to be read (contact or coil). Valid addresses are:
    - X0 to X170 (in multiples of 10)
    - Y0 to Y170 (in multiples of 10)
    - M0 to M1016 (in multiples of 8)
    - M8000 to M8248 (in multiples of 8)
    - S0 to S992 (in multiples of 8)
    - T0 to T248 (in multiples of 8)
    - C0 to C248 (in multiples of 8)
    - Z0 to Z170 (in multiples of 10, for PLS Y, PLF Y COIL, status of prev scan)
    - U0 to U248 (in multiples of 8, for OUT T COIL)
    - N0 to N1016 (in multiples of 8, for PLS M, PLF M COIL, status of prev scan)
    - D0 to D248 (in multiples of 8, for OUT C COIL)
    - V0 to V248 (in multiples of 8, for RST T COIL)
    - E0 to E248 (in multiples of 8, for RST C COIL)
Important note:
  Parameters P1 to P5 and P7 to P9 are not used.
Values that are returned:
  Value in PointValue (0) = First bit status (0 or 1)
  Value in PointValue (1) = Second bit status (0 or 1) .
  Value in PointValue (DriverNumPoints-1) = Last bit status (0 or 1)

Write Words of type T, C or D

Description of this command:
  Writes multiple values of consecutive words of type T (Timers), C (Counters) or D (Data registers).
  The PLC can be in STOP or in RUN mode.
Methods used to run this command:
  Analog Output
Number of points accepted by this command:
  1-32
Meaning of the DriverP0 parameter:
  0
Meaning of the DriverP6 parameter:
  Determines the address of the first timer, counter or data register to be over-written. Valid
  addresses are:
    - T0 to T255 for timers.
    - C0 to C199 for counters.
    - D0 to D511 for data registers.
    - D8000 to D8255 for special data registers.
Important note:
  Parameters P1 to P5 and P7 to P9 are not used.
Values that are sent:
  Value in PointValue (0) = Value for first word (0-65535)
  Value in PointValue (1) = Value for second word (0-65535) .
  Value in PointValue (DriverNumPoints-1) = Value for last word (0-65535)

Write Bits of type X, Y, M, S, T or C

Description of this command:
  Writes multiple status of consecutive bits of type X, Y, M, S, T, C (Contacts and coils). Bits are
  written in groups of 8. Address values must be a multiple of 8. The PLC can be in STOP or in RUN
  mode.
Methods used to run this command:
  Digital Output
Number of points accepted by this command:
  1-256
Meaning of the DriverP0 parameter:
  0

Meaning of the DriverP6 parameter:
Determines the address of the first group of 8 bits to be over-written. Valid addresses are:
- X0 to X170 (in multiples of 10)
- Y0 to Y170 (in multiples of 10)
- M0 to M1016 (in multiples of 8)
- M8000 to M8248 (in multiples of 8)
- S0 to S992 (in multiples of 8)
- T0 to T248 (in multiples of 8)
- C0 to C248 (in multiples of 8)
- Z0 to Z170 (in multiples of 10, for PLS Y, PLF Y COIL, status of prev scan)
- U0 to U248 (in multiples of 8, for OUT T COIL)
- N0 to N1016 (in multiples of 8, for PLS M, PLF M COIL, status of prev scan)
- D0 to D248 (in multiples of 8, for OUT C COIL)
- V0 to V248 (in multiples of 8, for RST T COIL)
- E0 to E248 (in multiples of 8, for RST C COIL)

Important note:
Parameters P1 to P5 and P7 to P9 are not used.

Values that are sent:
Value in PointValue (0) = Status for first bit (0 or 1)
Value in PointValue (1) = Status for second bit (0 or 1) .
Value in PointValue (DriverNumPoints-1) = Status for last bit (0 or 1)

Force Individual Bit of type X, Y, M, S, T or C

Description of this command:
Forces one single bit of type X, Y, M, S, T or C to an ON of OFF state. The PLC can be in STOP or in RUN mode.

Methods used to run this command:
Digital Output

Number of points accepted by this command:
1

Meaning of the DriverP0 parameter:
1

Meaning of the DriverP6 parameter:
Determines the address of the bit to be over-written. Valid addresses are:
- X0 to X7, X10 to X17, ..., X170 to X177
- Y0 to Y7, Y10 to Y17, ..., Y170 to Y177
- M0 to M1023
- M8000 to M8255
- S0 to S999
- T0 to T255
- C0 to C255

Important note:
Parameters P1 to P5 and P7 to P9 are not used.

Values that are sent:
Value in PointValue (0) = Status for bit (0 or 1)

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
[1300] PROTOCOL (Timeout): No answer
[1433] PROTOCOL (Format): Validation error in device response
[2139] CONFIG (NumValues): Only one bit can be written with this command
[2147] CONFIG (NumValues): Only one value can be read or written
[2186] CONFIG (NumValues): Too many values (max=128)
[2204] CONFIG (NumValues): Too many values (max=256)
[2209] CONFIG (NumValues): Too many values (max=32)
[2230] CONFIG (NumValues): Too many values (max=64)
[3001] CONFIG (P0): Invalid command

[3004] CONFIG (P0): Invalid command (2/3/4)
[4017] CONFIG (P2): Invalid bit number
[4018] CONFIG (P2): Invalid bit number (0-7)
[4089] CONFIG (P2): Invalid read mode
[4125] CONFIG (P2): Invalid write mode
[6008] CONFIG (P6): Invalid Address

Supported devices

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

MITSUBISHI Programmable Controllers FX Series.