

# General Specifications

Model NT351AJ  
MELSEC Driver



GS 34P02G01-01E

## ■ GENERAL

This MELSEC driver is an optional software package used to connect Mitsubishi Electric's MELSEC series of PLCs to the Versatile Data Server Software (VDS) or ASTMAC (\*1) system. It offers the following two connection methods.

\*1: ASTMAC is Japanese domestic market only (Not sales for overseas).

### ●EZ Socket type

Connects to MELSEC by way of Mitsubishi's middleware EZ Socket.

### ●Asynchronous type

Connects to the MELSEC sequencer CPU directly.

## ■ SYSTEM REQUIREMENTS

The system requirements follow those required for VDS specified in VDS Versatile Database Server Software, GS 34P02A02-01E, or for the ASTMAC base type specified in ASTMAC Overview, GS 34P02A03-01E.

Note that the runtime version of MELSEC Driver does not allow the user to make or modify settings and only allows the monitoring.

## ■ EZ Socket TYPE

The MELSEC driver incorporates EZ Socket, Mitsubishi's communication middleware, for communication with Mitsubishi's MELSEC series.

### ●Interface Specifications

Applicable models: MELSEC A/QnA/Q/FX series  
Connection interface: Serial, Ethernet, MELSEC NET II, MELSEC NET/10, MELSEC NET/H, CC-Link through EZ Socket  
Number of units connected: 32 max.  
Function: Reading/writing of sequence devices

### ●Applicable Mitsubishi Models

#### CPU Units

A series: A0J2H, A1S, A1SH, A1SJ, A1SJH, A1N, A2C, A2CJ, A2N(S1), A2S, A2SH, A3N, A2A(S1), A3A, A1FX, A2U(S1), A3U, A4U, A2US(S1), A2USH-S1  
QnA series: Q2A, Q2A-S1, Q3A, Q4A, Q4AR, Q2AS(H), Q2AS(H)S1  
Q series: Q00J, Q00, Q01, Q02(H), Q06H, Q12H, Q12PH, Q25H, Q25PH, Q02(H)-A, Q06H-A  
FX series: FX0(S), FX0N, FX1, FX2(C), FX2N(C), FX1S, FX1N(C)

#### Communication Units

CPU direct connection (RS-422): All CPU units which support RS-422.  
CPU direct connection (USB): QnH CPU units (Q mode) which support USB  
Remote I/O: AJ72P25/LP25/QLP25, AJ72R25/BR15/QBR15, AJ72T25B, A1SJ72T25B  
Computer link: AJ71C24/UC24, A1SJ71UC24  
Serial communication: AJ71QC24(N), A1SJ71QC24(N), QJ71C24  
CC-Link: AJ65BT-G4, AJ61BT11, A1SJ61BT11, QJ61BT11  
Ethernet: AJ71E71N, A1SJ71E71N, AJ71E71, A1SJ71E71, AJ71QE71, AJ71QE71N, A1SJ71QE71N, A1SJ71QE71, QJ71E71  
MELSECNET II: AJ71AP21, A1SJ71AP21  
MELSECNET/10: AJ71LP21, AJ71BR11, A1SJ71LP21, A1SJ71BR11, QJ71LP21-25, QJ71BR11  
MELSECNET/H: QJ71BR11, QJ71LP21-25

#### Interface Boards for Personal Computers

MELSECNET/H: Q80BD-J71LP21-25, Q80BD-J71BR11  
CC-Link: A80BD-J61BT13

●Restrictions on Communication Units

Serial Communication Units

- The VDS/ASTMAC system cannot be connected to the RS-422/485 terminals of the computer link or serial communication units since they are controlled by DC voltage.
- For the C24 computer link units, only version S6 or later can be connected.
- With the C24/UC24 computer link units, the VDS/ASTMAC system cannot access devices A/V/Z or extended file register R when the QnA unit is connected. It cannot write to AnSH units (EEPROM operation) when it is running or change the T/C settings.

The C24 units are subject to the following restrictions.

- Even if the AnU unit is installed in the system, only communication equivalent to that of the AnA units is available.
- For units with a model name containing both C24 and UC24, select a communication path according to the software version of a unit connected to them (see user's manuals of respective units for their software versions).
  - A1SCPU24-R2: UC24 equivalent
  - A1SJ71C24-PRF: UC24 equivalent for software version of "M" or later
  - A1SJ71C24-R2: UC24 equivalent for software version of "M" or later
  - A2CCPU24: UC24 equivalent for software version of "K" or later
  - A2CCPUC34-PRF: UC24 equivalent for software version of "K" or later

The following list indicates the supported and the unsupported models.

Supported models:

- A1SCPUC24-R2, A1SJ71C24-PRF,
- A1SJ71C24-R2
- A1SJ71UC24-PRF, A1SJ71UC24-R2
- A2CCPU24, A2CCPU24-PRF
- AJ71C24-S6, AJ71C24-S8, AJ71UC24
- AJ71UC24-PRF

Unsupported models:

- A1SJ71C24-R4, A1SJ71UC24-R4
- A2CJ71C24-R4
- A1SJ71UC24-R2, A1SJ71UC24-R4-S2
- AJ71UC24-S2
- AJ71C24, AJ71C24-S3

Use RS-232-C/RS-422 cables recommended by Mitsubishi Electric that are compatible with the serial communication units.

CPU Units

Use the following cables for connection to the QnCPU units.

- QC02R4EX (plus conventional RS-422 cable)
- QC30R2

Ethernet Communication Units

The following versions or later of Ethernet units (AJ71QE71) for QnA units can be connected.

- AJ71QE71, AJ71QE71-B5:
  - Software version of "C" or later
- A1SJ71QE71-B2, A1SJ71QE71-B5:
  - Software version of "E" or later

The Ethernet units for ACPU (AJ71E71) offer functions equivalent to those of an AnA unit even if they are installed to an AnU unit.

Although a communication error LED is lit for the following versions of Ethernet units for ACPU (AJ71E71) when they are installed to a remote I/O unit, this does not affect their normal operation.

- AJ71E71, A1SJ71E71-B2/B5:
  - Software version of "U" or earlier
- AJ71E71-S3, A1SJ71E71-B2-S3/-B5-S3:
  - Software version of "H" or earlier

G4 Units (CC-Link)

The AJ65BT-G4 unit can be connected to the products with the software version of "B" or later. The G4 units on the master unit (AJ61BT11 and AJ61QBT11) can be connected to those with the software version of "N" or later.

●Supported MELSEC Devices

When Accessing to Sequence CPU

Type		Device			Applicable CPU				Remarks
		Length	Symbol	Address	Q	QnA	A	FX	
Special relays		Bit	SM	Decimal	√	√			
Special registers		Word	SD	Decimal	√	√			
Input relays		Bit	X	Hexadecimal	√	√	√	√	For FX, the device addresses are in octal format.
Output relays		Bit	Y	Hexadecimal	√	√	√	√	
Internal relays		Bit	M	Decimal	√	√	√	√	
Latch relays		Bit	L	Decimal	√	√	√		
Annunciators		Bit	F	Decimal	√	√	√		
Edge relays		Bit	V	Decimal	√	√			
Link relays		Bit	B	Hexadecimal	√	√	√		
Data registers		Word	D	Decimal	√	√	√		
Link registers		Word	W	Hexadecimal	√	√	√		
Timers	Contacts	Bit	TS	Decimal	√	√	√	√	
	Coils	Bit	TC	Decimal	√	√	√	√	
	Current readings	Word	TN	Decimal	√	√	√	√	
Counters	Contacts	Bit	CS	Decimal	√	√	√	√	
	Coils	Bit	CC	Decimal	√	√	√	√	
	Current readings	Word	CN	Decimal	√	√	√	√	
Integrating timers	Contacts	Bit	SS	Decimal		√			
	Coils	Bit	SC	Decimal		√			
	Current readings	Word	SN	Decimal		√			
Special link relays		Bit	SB	Hexadecimal	√	√	√		
Special link registers		Word	SW	Hexadecimal	√	√	√		
Step relays		Bit	S	Decimal	√	√	√	√	
Direct inputs		Bit	DX	Hexadecimal	√	√			
Direct outputs		Bit	DY	Hexadecimal	√	√			
File registers		Word	R	Decimal	√	√	√		
Serial file registers		Word	ZR	Hexadecimal	√	√			
Extended file registers		Word	ER	Decimal			√		
Buffer memory		Word	G	Decimal	√	√			

T01E.EPS

●Relationship with Device Tag Objects

Device Tag Object		Device Type		Remarks
		Bit	Word	
DI		√		
DO		√		
DR	Input	√		Bit device outputs are supported only when the device address starts at and the number of accesses is a multiple of 16.
	Output	√		
AI	AI input		√	Bit devices can be accessed only when the device address starts at a multiple of 16.
	BCD input	√		
AO	AO output		√	
	BCD output	√		
AR			√	
TXT			√	Only the "UI2" data type and "Shift JIS" character code are supported.
XAI			√	
XAO			√	
XAR			√	
XTX				
BD	I/O address		√	Specify data in ASCII.
	I/O address for start-reading check (read)		√	
	I/O address for end-reading notification (read)		√	
	Write-permission register (write)		√	
	I/O address for end-writing notification (write)		√	

T03E.EPS

## ■ ASYNCHRONOUS TYPE

### ●Interface Specifications

#### Communication Interface

Ethernet:

Method of access to device data:

Continuous bit access

Continuous word access

Asynchronous event reception (on-demand processing):

Received text: 128 bytes max.

RS-232-C:

Method of access to device data:

Continuous bit access

Continuous word access

### ●Applicable Models

- A series
- QnA series
- Q series (\*1)

\*1: Only the devices covered by the A series can be accessed. Devices Ms and Ds between 9000 to 9999 cannot be accessed.

### ●Communication Protocol Specifications

#### Ethernet Driver

Communication protocol:

Interface: Ethernet

Supported model:

Mitsubishi Electric:

AJ71E71 Ethernet interface unit (version K or later)

QE71 Ethernet interface unit (\*1)

QJ71E71 Ethernet interface unit (\*1)

Communication function:

Access to data in sequencer CPU

Reception of sequencer asynchronous event

Data format: ASCII

Protocol: UDP/IP

Port No.: Specifiable

ASTMAC: Specifiable.

MELSEC: Specifiable by MELSEC.

Update method:

Reading/writing data from/to sequence CPU

Through fixed buffer

Note: Specify the IP address or node name at the other end of the line. ACPU monitoring timers 0 to 9 are available (\*1) (250 ms).

\*1: Operates the function covered by the AJ71E71 Ethernet interface unit.

#### RS-232-C Driver

Communication protocol:

Interface: RS-232-C

Supported model:

Mitsubishi Electric:

AJ71C24-S8 Computer link unit

AJ71UC24 Computer link unit (\*1)

A0J2-C214S1 Computer link unit (\*1)

AJ71QC24 Computer link unit (\*1)

Protocol: Dedicated protocol (control procedure 4 only)

Transmission method: Half-duplex

Synchronization method: Start-stop synchronization

Transmission speed: 300, 600, 1200, 2400, 4800, 9600, 19200 bps

Data format:

Start bit: 1

Data bit: 7 or 8

Parity bit: 0: none; 1: odd; 2: even

Sum check: Yes/no

Specification of terminator character:

Available for control procedure 4

Transmission wait: 0 to 15 (x 10) msec

Note: Specify the COM port number used.

\*1: Operates the function covered by the AJ71C24-S8 computer link unit.

### ●Supported Devices

The following table shows the devices that can be handled with the MELSEC I/O driver contained in this driver software package.

#### Bit device

Input relays: X

Output relays: Y

Internal relays: M

Special relays: M

Latch relays: L

Step relays: S

Link relays: B

#### Word devices

Data registers: D

Special registers: D

Link registers: W

File registers (\*1): R

\*1: The extended file registers are not supported.

● Relationship to Device Tag Objects

The following table shows the relationship between the device types acquired by the MELSEC I/O driver contained in this driver software package and the device tag objects.

Device Tag Object Type		Specifiable Device Types									
		Bit Device						Word Device			Asynchronous Data
		X	Y	M	L	S	B	D	W	R	ONDEMAND
DI		√		√	√	√	√				
DO			√	√	√	√	√				
DR	Input	√		√	√	√	√				
	Input/output		√	√	√	√	√				
AI (*1)	AI input	√		√	√	√	√	√	√	√	
	BCD	√		√	√	√	√				
AO (*1)	AO output		√	√	√	√	√	√	√	√	
	BCD		√	√	√	√	√				
AR								√	√	√	
TXT								√	√	√	√
XAI								√	√	√	
XAO								√	√	√	
XAR								√	√	√	
XTX											
BD (*1)	Input trigger	√		√	√	√	√	√	√	√	√
	Input data	√		√	√	√	√	√	√	√	
	Output data		√	√	√	√	√	√	√	√	
	Notification of input/output completion		√	√	√	√	√	√	√	√	
	Output permission	√		√	√	√	√	√	√	√	

√: Indicates that the device type can be specified with the corresponding object type.

T04E.EPS

\*1: When a bit device is specified, the data is handled as 16-bit data.

■ MODEL AND SUFFIX CODES

Model	Suffix Code	Description
NT351AJ	-LW11A	MELSEC Driver

T05E.EPS

■ ORDERING PROCEDURE

Specify the model and suffix codes.

■ RELATED DOCUMENTS

- VDS, GS34P02A02-01E
- ASTMAC Overview, GS34P02A03-01E

■ TRADEMARKS

- STARDOM is a trademark of Yokogawa Electric Corporation.
- Ethernet is a registered trademark of Xerox Corporation, the United States.
- MELSEC is a registered trademark of Mitsubishi Electric Corporation.
- Other company and product names in this document are trademarks or registered trademarks of their respective holders.