

5.7 FINS IO Server

5.7.1 Introduction

The FINS IO Server includes the configuration of:

- The eWON as a FINS Hostlink client (master) to give access on values in CSCJ series OMRON equipments reachable using eWON serial port(s).
- The eWON as a FINS TCP/UDP client (master) to give access on values in CSCJ OMRON equipments reachable using eWON Ethernet interface.
- The eWON as a FINS TCP/UDP server acting as a gateway between the Ethernet/PPP interface and the serial interface (used to connect remotely programming/monitoring software to OMRON FINS supporting equipments reachable using eWON serial ports).

The FINS IO Server is designed to provide simultaneous access to OMRON equipments on its serial interface, and Ethernet interface. The correct protocol will depend on the topic the Tag belongs to. UDP and TCP protocols can be mixed as well on the Ethernet interface.

When the BaudRate in the FINS IO Server is set to a value different than "Disabled", the serial Hostlink Client will be enabled.

The FINS IO Server can be configured in 3 modes:

- Full Duplex mode (eWON serial link must be configured in RS232 mode) without HW handshaking
- Full Duplex mode with HW handshaking
- Half Duplex slave mode (RS485 mode)

5.7.2 Setup

5.7.2.1 Communication Setup

COM Setup		
COM Port:	SER1 Port (COM:1)	
Baud Rate:	Disabled	Default: 9600
Parity:	Even	Default: EVEN
Databits:	7	Default: 7
Stop Bit(s):	2	Default: 2
HW Mode:	Full Duplex NO Handshaking	Default: Full duplex no Handshaking
Reply Timeout:	MS	50..50000, default: 3000
Ethernet FINS network:		0..127, default: 0
Ethernet FINS node:		0..254, default: 0
Serial FINS network:		0..127, default: 0
Serial FINS node:		0..254, default: 0

Figure 78: FINS IO server COM setup

The following parameters can be modified:

Baud Rate	Disabled, 1200, 2400, 4800, 9600, 19200, 38400, 57600
Parity	None, Odd, Even
Data Bits	7, 8
Stop Bit(s)	1,2
HW mode	Full Duplex no HW handshaking, Full Duplex HW handshaking, Half Duplex
ReplyTimeout	Maximum time the eWON will wait for a valid FINS message response (applicable for ethernet and serial interface).
Ethernet FINS network	Source Network Address (SNA) filled in a FINS request message originating from the eWON and sent out on the ethernet interface.
Ethernet FINS node	Source Node Address (SA1) filled in a FINS request message originating from the eWON and sent out on the ethernet interface. It uniquely identifies the eWON on the ethernet network.

Table 75: FINS IO server COM setup configuration fields

Serial FINS network	Source Network Address (SNA) filled in a FINS request message originating from the eWON and sent out on the serial interface.
Serial FINS node	Source Node Address (SA1) filled in a FINS request message originating from the eWON and sent out on the serial interface. It uniquely identifies the eWON on the serial network.

Table 75: FINS IO server COM setup configuration fields

5.7.2.2 Topic Configuration

The screenshot shows a configuration window for FINS IO server topics. It contains three sections, each for a topic (A, B, and C). Each section has a header with a topic name and an 'Enabled' checkbox. Below each header are four rows of configuration fields: 'Topic Name' (text input), 'Protocol' (dropdown menu with 'Fins Serial' selected), 'Global Device Address' (text input), and 'Poll Rate' (text input with 'MS' unit). Default values are shown for Protocol (SERIAL) and Poll Rate (2000). At the bottom of the window are two buttons: 'Update Config' and 'Cancel'.

Figure 79: FINS IO server topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of FINS Tags like:

- Enable/Disable
- Protocol
- Global Device Address
- Polling Rate

Topic configuration item	Description
Topic enabled	Enables or disables polling of all the Tags in the topic.
Protocol	Protocol used for the tags belonging to this topic: FINS Serial, FINS UDP, FINS TCP.
Global Device Address	See below for the Device Address Syntax. If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 76: FINS IO server topic configuration fields

5.7.2.3 Gateway Configuration

The following parameters can be modified:

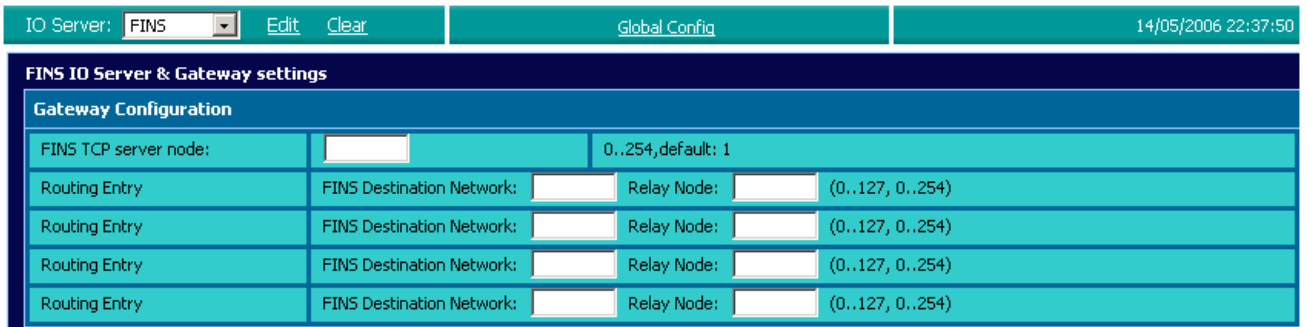


Figure 80: FINS IO server gateway configuration

FINS TCP Server Node	EWON FINS server node address used during FINS TCP session establishment (exchange of the FINS node address messages, and allocation of a FINS TCP Client node if necessary).
Routing Entry 1..4	For each defined destination network, gives the matching relay destination node. This is used to fill in the host link unit ID in the hostlink frame which encapsulates the FINS message sent out on the serial interface.

Table 77: FINS IO server gateway configuration fields

5.7.3 Tag Name Convention

IO Server configuration		
IO Server Name	FINS	
Topic Name	A	
	B	
	C	
Item Name	ValueName, FINS Network, FINS Node, Hostlink or Ip Address	If FINS Serial has been chosen at topic level, Hostlink value has to be defined. If FINS UDP or FINS TCP has been chosen at topic level, IP address has to be defined.
	ValueName	Topic PLC Address is used.

Table 78: FINS IO server - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If address is also specified at topic level, the address specified at Tag level will be ignored.

5.7.3.1 Value Name

5.7.3.1.1 General Description

The format of value names for data from CS/CJ OMRON controllers is shown below. Its is based on the naming convention used by the CX Programmer programming software. The format is shown below (The parts of the name shown in square brackets are optional).

General Value Name Format: X[bank number:][modifier]word address[#bit address]*

- X identifies the Memory area acronym.
- [bank number:] is only supported by the E memory area. Values 0 to max values for memory area.
- [modifier] allow you to interpret the data in a specific type (Word if omitted).
- [#bit address] is only supported by A, D, CIO, H and W memory areas. Values 0 to 15.

*items between brackets "[]" are optional (the brackets should not be used!)

Supported memory areas:

X	Memory area
A	Auxiliary area
C	Counter area
CIO	Core I/O area
D	Data Memory area
E	Extended Data Memory area
H	Holding area
T	Timer Area
W	Work Area

Table 79: FINS IO server supported memory areas table

Modifier:

Symbol	Modifier	value range
W	Word	0 .. 65535
S	signed Word	-32768 .. 32767
D	DWord	0 .. 4294967296 (*)
L	signed DWord	-2147483648 .. 2147483647 (*)
F	Float	+/- 3.4e38

Table 80: FINS Modifiers

(*) Important: See "Tags are stored as Float" on page 62

examples :

address	point to
A5	the Word at address 5 in the Auxiliary Area (equivalent to AW5)
AS5	the Signed Word at address 5 in the Auxiliary Area
A2#5	the bit 5 from the Word at address 2 in the Auxiliary Area
E0:S3	the signed Word at address 3 from the Extended Data Memory 0

Table 81: FINS address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

Status, Global Device Address

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 82: Tag Status meaning

5.7.3.2 Global Device Address

The global device address is used in the topic definition or in the Tag definition. If it is used in the Tag definition, it will be separated from the value name by a coma.