

Omron – FINS (UDP)

Driver documentation

Connect Ideas. Shape solutions.



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Document description

This document is dedicated to the programming and functionalities of the Omron FINS driver with transportation protocol UDP.

Driver selection

Kreo - Select device	×
Beckott	^
TwinCAT ADS protocol	
ESA	
Codesys SoftPLC (for generic PLC)	
OPC UA client	
SoftMotion protocol (TCP)	
Fatek	U
FB series	
Modbus	U
Master protocol (TCP)	U
Slave protocol (TCP)	U
Omron	U
Ethernet/IP (NJ-NX series)	U
FINS protocol (TCP)	U
	U
Schneider Miseries DLC Codesur based	U
Modhus Master protocol (TCD)	U
	U
Industrial ethernet protocol (LOGOLCpu 04B7)	U
Industrial ethernet protocol (LOGO! Cpu 0AB8)	U
Industrial ethernet protocol (S7-1200 cpu)	U
Industrial ethernet protocol (S7-1200 symbolic)	U
Industrial ethernet protocol (S7-200 Smart cpu)	U
Industrial ethernet protocol (S7-3/400 cpu)	
	OK

Select Omron – FINS protocol (UDP) from the Kreo driver portfolio.



Communication parameters

The page below is displayed by double clicking over the HMI communication port:

			×
Info ETH 1		TH 2	
Ethernet parameters	5		
IP address 192.168.0	.1		
Subnet mask 255.255.0	.0		
Ping timeout 500 ms		·	
FINS protocol (UDP))		
Name	Value		Format
General port parame	eters		
Protocol timeout (msec.)) 500		[50 - 10000] Step:50
No. of retry	0		number: 0 - 3
Omron FINS specific	parameters		
SNA	00		hexadecimal number: 0 - 7F
SA1	65		hexadecimal number: 0 - FF
SA2	00		hexadecimal number: 0 - FF
<			Ð

IP address	Ip address of the HMI port
Subnet mask	Subnet mask of the HMI port
Ping timeout	The PING command is sent in order to check the connection stability
Protocol	The PLC has to reply inside this time out window
Timeout	
No. of retry	After these retries (each one with communication error) the HMI itself will be
	forced in the error status
SNA	Source Network Address
	FINS parameter for the HMI connection
	00=Local, 01 to 7F, 65=PC link
SA1	Source Node Number
	FINS parameter for the HMI connection
	01 to 3E, 01 to 1F in Host Link, FF Broadcast
SA2	Source Unit Address
	FINS parameter for the HMI connection
	00=CPU, FE=Network board, 10+N°=CPU bus unit, 20+N°=CS1 spec. Unit



The page below is displayed by double clicking over the communication driver.

Info		Parameters					
De	vice propert	ies					
	🗌 Is offscan		Disable	e Optimization			
	User Address F	ield Format	Default]	
De	vice parame	ters					
	Name		Value		Form	at	
	Tcp/IP setting	s					
	IP address		0.0.0.0		IP ao	ldress: 0.0.0.0 - 255.255.255.255	
	IP port		9600		numi	ber: 0 - 65535	
	Omron FINS	pecific parar	neters		_		
	DNA		00		hexa	decimal number: 0 - 7F	
	DA1		01		hexa	decimal number: 0 - FF	
	DA2		00		hexa	decimal number: 0 - FF	
							Ok

Is Offscan	The driver is defined in the project but will not be scheduled.
	In order to enable the driver it is mandatory to use the ST script function:
	TAG_SETOFFSCANDEV (device, state)
	TAG_SETOFFSCAN (Tag, state)
Disable	Disable the data optimization.
optimization	Each tag will be refreshed with a separate communication message.
User address	Tag address format.
field format	The default format is defined in the driver description but the user can select
	the desired format (DECIMAL or HEXADECIMAL)
IP address	IP address of the PLC port
IP port	Communication port.
	The default value is port 500
DNA	Destination Network Address
	FINS communication parameter
	00=Local, 01 to 7F
DA1	Destination Node Number
	FINS communication parameter
	01 to 3E, 01 ti 1F in Host Link, FF Broadcast



DA2	Destination Unit Address
	FINS communication parameter
	00=CPU, FE=Network board, 10+N°=CPU bus unit, 20+N°=CS1 spec. Unit

For the communication parameters setting please refer to the Omron user manual – FINS communication

IsOffscan

Is offscan management can be used in case a specific machine module will be part of the Kreo HMI project but will not be physically connected.



A NOT CONNECTED and ONSCAN device will reduce dramatically the performance of the page refresh due to the communication timeout.

Disable Optimization:

This option can be used in order to identify wich of the data displayed on a specific page is causing the communication error.

The value will not be displayed but a series of ????? will let the user identify the faulty tag to be fixed.



ESN Tag definition

				×
Tag		Database	Events	
Name	Tag1			
Address type	e Devic	e	~	
Туре	Boole	an	 Array size 	1
Device	FINS pro	tocol (UDP)	V Dynamic	
Data Area	Auxiliary	area	 Data Type 	Bit ~
A	0		🖉 Bit	0
Persiste Refresh (ms; Use def Unit	nt 🗌 R 0 ault value [None	ead only (Always u OffScan mode e] ~	odate 🗌 Use in scripts a Never v Networ	Allow subtags Tag OPC tild 0
				Ok

The address is based on the memory mapping of the PLC data areas.



Tag importing

The Tag database can be imported from the PLC environment selection the below icon.

	+	- ×	ቆ ይ ቆ		
		Y	Cartella ⊽	Nome ∇	Descrizione
	1			Tag1	l
]	2				
	3				
	4				
	5				
	6				

The supported data formats are:

- Omron FINS (*.cxr)
- Omron FINS (*.xls)



Memory areas

Auxiliary area	Bit Word Dword Real Double String	1 16 32 32 64 8	R/W	Read and write in the specific area
Core Input/Core output area	Bit Word Dword	1 16 32	R/W	Read and write in the specific area
Counter	Value (Word) Contact (Bit)	16 1	R/W	Read and write in the specific area
Data Memory area	Word Dword Real Double String	16 32 32 64 8	R/W	Read and write in the specific area
Data Register	Word	16	R/W	Read and write in the specific area
Extended Memory Data area	Word Dword Real Double String	16 32 32 64 8	R/W	Read and write in the specific area
Holding area	Bit Word Dword Real Double String	1 16 32 32 64 8	R/W	Read and write in the specific area
Index Register	Dword	32	R/W	Read and write in the specific area
Task Flag area	Bit	1	R/W	Read and write in the specific area



Timer	Value (Word) Contact (Bit)	16 1	R/W	Read and write in the specific area
Work area	Bit Word Dword Real Double String	1 16 32 32 64 8	R/W	Read and write in the specific area



Error codes

PING ERROR	The device is not replying to the PING command
DRIVER ERROR	The message cannot be dispatched
PROTOCOL ERROR	Generic error
PROTOCOL TIMEOUT	The PLC does not reply inside the time out window
SOCKET ERROR	The ethernet socket cannot be created.
	Hardware failure
TRANSMISSION ERROR	Transmission error
PLC CODE ERR	See the notes below
ERROR	Unkown error

In case of PLC code error "PLC CODE ERR: XXXX" the code displayed has a specific meaning in order to identify the specific error.



The detailed error code description is available in the Omron manual: "Omron_FINS_W227E11.pdf".



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