



V19.4.5  
Drivers

eScada.Drivers.OmronFinsCom

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( Host Link Protocol – FINS Commands )

**OS availability**

Windows, Linux, RaspBian

**Atomic data type**

bit or 16, 32 bit Word oriented protocol.

**Hardware and documentation reference**

www.omron.com

Specification W342-E1-16

**Parameters available in every section**

|          |                        |  |
|----------|------------------------|--|
| Channel: | COM Port               | Serial port name depending on OS type.<br>e.g. Linux: /dev/ttyS0, /dev/ttyUSB0<br>e.g. Windows: COM1, COM3 |
|          | Baud rate              | Communication baud-rate, eg. 9600, 38400, 19200, etc.  |
|          | Parity                 | N for none, E for even, O for odd  |
|          | Data bit               | Allowed values are 5, 6, 7 and 8   |
|          | Data stop bit          | Allowed values are 1 and 2   |
|          | Reconnect timeout [ms] | Waiting time before a reconnection after COMM break-down   |
|          | Response timeout [ms]  | Timeout interval used to wait for a response.  |
| Device:  | FINS mode              | 0=CPU unit directly connected (default)<br>1=CPU unit on a network (*). This mode has not been tested.     |
|          | PLC Series             | 0=CS/CJ/CP/NSJ (default), 1=CVM1/CV  |
|          | Unit ID                | Unit ID number   |
|          | (*) DNA                | Destination network hardware (HEX value)   |
|          | (*) DA1                | Destination node address (HEX value)   |
|          | (*) DA2                | Destination unit Address   |
|          | (*) SNA                | Source network hardware (HEX value)  |
|          | (*) SA1                | Source node address (HEX value)  |
|          | (*) SA2                | Source unit Address  |
|          | Read - Retry value.    | Retry value before getting COMM error. (0=no retry)  |
|          | Write - Retry value.   | Retry value before getting COMM error. (0=no retry)  |
| Group:   | none                   |  |
| Tag:     | none                   |  |

**Remarks for devices**

The following attributes can be expressed for every device.

Bytes order actions      None, Swap bytes (little endians ↔ big endians adjustment)  
String actions              None, Swap bytes in words

**Useful Linux commands**

COM List:                    [dmesg](#) | [grep tty](#)  
COM rights:                 [sudo chmod a+rw /dev/ttyUSB0](#)  
COM user info:             [ls -l /dev/ttyUSB0](#)  
COM add user:             [sudo adduser username dialout](#) - (dialout is the default group)

**Implemented I/O memory area**

|                     |              |            |                             |
|---------------------|--------------|------------|-----------------------------|
| CIO                 | CIOx, CIOx.b | Read/Write |                             |
| WR                  | Wx, Wx.b     | Read/Write |                             |
| HR                  | Hx, Hx.b     | Read/Write |                             |
| AR                  | Ax, Ax.b     | Read/Write | (From A0 to A447 Read Only) |
| Timers PV           | TPVx         | Read/Write |                             |
| Timers Status       | TSTx         | Read only  |                             |
| Counters PV         | CPVx         | Read/Write |                             |
| Counters Status     | CSTx         | Read only  |                             |
| DM                  | Dx, Dx.b     | Read/Write |                             |
| EM                  | Ee.x, Ee.x.b | Read/Write |                             |
| Task flag TK        | Kx           | Read only  |                             |
| Task flag TK status | KSTx         | Read only  |                             |
| IR                  | IRx          | Read/Write | (32 bit data)               |
| DR                  | DRx          | Read/Write |                             |

**Implemented Parameters area**

|                             |      |            |
|-----------------------------|------|------------|
| PLC Setup Area              | PSAx | Read/Write |
| I/O Table Registration Area | PTRx | Read/Write |
| Routing table Area          | PRTx | Read/Write |
| CPU Bus Unit Setup Area     | PBUx | Read/Write |

x = Address

b = Bit number from 0 to 15

e = EM bank number

Expressed using base 10 numbers

**BCD values**

If it's necessary to use BCD codification for integers values, please precede the value address with this character @

It is possible to use such kind of character with all integers format from 16 bits to 64 bits.

e.g.

@TPV3 (value using BCD format), TPV3 (value using binary format)

@D3 (value using BCD format), D3 (value using binary format)

**Addressing**

| Variable type  | Type                 | Address type   | Items  |
|--|----------------------|--|--------|
| <b>Boolean</b>   |                      |  |        |
| Single bit   | Bit                  | CIO, W, H, A, TST, CST, D, E, K                          | (C)    |
| <b>Byte</b><br>The number of items used declaring TAGs, must be a multiple of 2  |                      |  |        |
| Unsigned 8 bit   | UInt8                | CIO, W, H, A, D, E, DR, PSA, PTR, PRT, PBU               | (C)    |
| Signed 8 bit   | Int8                 |  |        |
| <b>16 bit</b>  |                      |  |        |
| Unsigned integer 16 bit  | UInt16               | CIO, W, H, A, TPV, CPV, D, E, DR, PSA, PTR, PRT, PBU     | (C)    |
| Signed integer 16 bit  | Int16                |  |        |
| <b>32 bit</b>  |                      |  |        |
| Unsigned integer 32 bit  | UInt32               | CIO, W, H, A, TPV, CPV, D, E, IR, DR, PSA, PTR, PRT, PBU | (C)    |
| Signed integer 32 bit  | Int32                |  |        |
| Single precision 32 bit - ( IEEE 754 )   | Float                |  |        |
| <b>64 bit</b>  |                      |  |        |
| Unsigned integer 64 bit  | UInt64               | CIO, W, H, A, TPV, CPV, D, E, IR, DR, PSA, PTR, PRT, PBU | (C)    |
| Signed integer 64 bit  | Int64                |  |        |
| Double precision 64 bit - ( IEEE 754 )   | Double               |  |        |
| <b>Strings</b><br>The string length used declaring TAGs, must be a multiple of 2<br>String bytes can be interpreted as ASCII, UTF-7, UTF-8, UTF-16 or UTF-32 encoding                  |                      |  |        |
| Array of bytes   | String               | CIO, W, H, A, D, E                                       | (A, C) |
| Array of bytes. (Siemens S7)<br>Array of bytes. (AllenBradley style)   | S7String<br>ABString | CIO, W, H, A, D, E                                       | (B, C) |
| (A) It depends on the strings length:<br>e.g. if you want to read strings with a length of 10 chars each string, you can set a number of items of $74 / 10 = 7$ consecutive items.     |                      |  |        |
| (B) It depends on the strings length:<br>e.g. if you want to read strings with a length of 10 chars each string, you can set a number of items of $74 / (10+2) = 6$ consecutive items. |                      |  |        |
| (C) It depends on PLC model. The best way is to try with the maximum items you need.<br>Please refer to your PLC model documentation and protocol specification W342-E1-16             |                      |  |        |

**S7 strings format**

They have got two bytes at the beginning.

The first byte is for max allowed string length, the second one is for the real string length.

These types of strings can be declared with a length of 255 bytes max.

**AB Strings format**

They have got one word (16 bit) at the beginning, it contains the string length.

**Consecutive items**

The number of consecutive read/write items depends on the PLC model.