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**INDUSTRIAL CONTROL COMMUNICATIONS, INC.**

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# **Siemens FLN Master Driver Manual**

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# 1 Siemens FLN Master

## 1.1 Overview

This driver supports the Siemens FLN protocol as a network master. Some notes of interest are:

- Service objects can access LAI (Logical Analog Input), LAO (Logical Analog Output), LDI (Logical Digital Input), and LDO (Logical Digital Output) points.
- Supported FLN commands are indicated in Table 1.

**Table 1: Supported Siemens FLN Commands**

Command Code	Command
06H	Read A Point
07H	Write A Point
75H	Memorize A Point
0AH	Get Point Information
0FH	Release A Point*

\* Excludes XLTR-1000

- The Get Point Information (0AH) command is implicitly used by the driver to get the current point information of each point before executing a read or write command.
- LAI and LAO slope and intercept is applied automatically when reading and writing points.
- Both English and Metric units are supported when accessing LAI and LAO points.

## 1.2 Master Settings

### Baud Rate

Selects the baud rate of the network.

### Parity

Fixed at No Parity (1 Stop Bit).

### Timeout

Sets the time in milliseconds that the driver will wait for a response from a device after sending a request.

### Scan Rate

This is the time in milliseconds the driver will wait between sending requests. This is a useful feature for certain devices or infrastructure components (such as radio modems) that may not be capable of sustaining the maximum packet rates that the driver is capable of producing. The start time for this delay is taken with respect to the moment at which the driver is capable of sending the next packet (due to either reception or timeout of the previous request). If no additional time is required, setting this field to 0 instructs the driver to send its next request packet as soon as possible.

## 1.3 Service Object Settings

A variety of different service object types are available. Each type targets a different FLN point type. For each service object, the driver will continually read the values of the defined FLN point within the service object from the designated device, storing the values in the database (if the read function is enabled). When data in the database changes where the FLN points are mapped, a write request is generated to the designated device notifying it of the changed object values (if the write function is available and enabled).

### 1.3.1 LAI Service Object Settings

#### **Description**

This 32-character (max) field is strictly for user reference: it is not used at any time by the driver.

#### **Destination Address**

Indicates the destination address (0...99) of the remote slave device on the network that will be accessed by this service object. A destination address of 99 will receive a response from a device at any address. If the destination address is set to 99, ensure that there is only one slave connected.

#### **Start Point Number**

Defines the starting point number (1...99) for a range of FLN points for this service object.

#### **Number of Points**

Defines the number of FLN points (1...99) to be targeted by this service object.

#### **Database Address**

Defines the database address where the first FLN point value of this service object will be mapped. The configuration studio will not allow entry of a starting database address that will cause the service object to run past the end of the database. The highest valid database address, therefore, will depend on the targeted data type, as well as the number of items to be accessed.

#### **Data Type**

Specifies how the value will be stored in the database for each FLN point in this service object. This defines how many bytes will be allocated, whether the value should be treated as signed or unsigned, and whether the value should be interpreted as an integer or a floating point number. Select the desired data type from this dropdown menu.

#### **Multiplier**

The amount that associated network values are scaled by prior to being stored into the database or after being retrieved from the database. Upon retrieval from the database, raw data is multiplied by the multiplier to produce a network value (to be sent to the device). Similarly, network values (read from the device) are divided by the multiplier before being stored into the database.



### **Unit System**

Select the desired unit system to use for applying the FLN points' slope and intercept.

### **Read Function**

Fixed at "Read A Point (06H)".

## **1.3.2 LAO Service Object Settings**

### **Description**

This 32-character (max) field is strictly for user reference: it is not used at any time by the driver.

### **Destination Address**

Indicates the destination address (0...99) of the remote slave device on the network that will be accessed by this service object. A destination address of 99 will receive a response from a device at any address. If the destination address is set to 99, ensure that there is only one slave connected.

### **Start Point Number**

Defines the starting point number (1...99) for a range of FLN points for this service object.

### **Number of Points**

Defines the number of FLN points (1...99) to be targeted by this service object.

### **Database Address**

Defines the database address where the first FLN point value of this service object will be mapped. The configuration studio will not allow entry of a starting database address that will cause the service object to run past the end of the database. The highest valid database address, therefore, will depend on the targeted data type, as well as the number of items to be accessed.

### **Data Type**

Specifies how the value will be stored in the database for each FLN point in this service object. This defines how many bytes will be allocated, whether the value should be treated as signed or unsigned, and whether the value should be interpreted as an integer or a floating point number. Select the desired data type from this dropdown menu.

### **Multiplier**

The amount that associated network values are scaled by prior to being stored into the database or after being retrieved from the database. Upon retrieval from the database, raw data is multiplied by the multiplier to produce a network value (to be sent to the device). Similarly, network values (read from the device) are divided by the multiplier before being stored into the database.

### **Unit System**

Select the desired unit system to use for applying the FLN point's slope and intercept.



### **Read Function**

Select whether or not to allow the service object to issue read requests. When enabled, the service object will continuously read from the slave unless a pending write exists.

### **Write Function**

Select whether or not to allow the service object to issue write requests, and the command to use when enabled. When values encompassed by this service object change in the internal database and writes are enabled, these changes will be written down to the targeted slave.

Note that not all points support the Write A Point (07H) command. Points such as set points and setup parameters that typically do not change once they've been established may reject this command with a Security Error, which can be seen when using a Diagnostics Object. For these points, the Memorize A Point (75H) command must be used. Because the Memorize A Point (75H) command writes to both RAM and EEPROM on the slave device, while the Write A Point (07H) command writes only to RAM, it is recommended to only use the Memorize A Point (75H) command when absolutely necessary.

## **1.3.3 LDI Service Object Settings**

### **Description**

This 32-character (max) field is strictly for user reference: it is not used at any time by the driver.

### **Destination Address**

Indicates the destination address (0...99) of the remote slave device on the network that will be accessed by this service object. A destination address of 99 will receive a response from a device at any address. If the destination address is set to 99, ensure that there is only one slave connected.

### **Start Point Number**

Defines the starting point number (1...99) for a range of FLN points for this service object.

### **Number of Points**

Defines the number of FLN points (1...99) to be targeted by this service object.

### **Database Address**

Defines the database address where the first FLN point value of this service object will be mapped. The configuration studio will not allow entry of a starting database address that will cause the service object to run past the end of the database. The highest valid database address, therefore, will depend on the targeted data type, as well as the number of items to be accessed.

### **Data Type**

Fixed at "1 Bit".

### **Read Function**

Fixed at "Read A Point (06H)".



### 1.3.4 LDO Service Object Settings

#### **Description**

This 32-character (max) field is strictly for user reference: it is not used at any time by the driver.

#### **Destination Address**

Indicates the destination address (0...99) of the remote slave device on the network that will be accessed by this service object. A destination address of 99 will receive a response from a device at any address. If the destination address is set to 99, ensure that there is only one slave connected.

#### **Start Point Number**

Defines the starting point number (1...99) for a range of FLN points for this service object.

#### **Number of Points**

Defines the number of FLN points (1...99) to be targeted by this service object.

#### **Database Address**

Defines the database address where the first FLN point value of this service object will be mapped. The configuration studio will not allow entry of a starting database address that will cause the service object to run past the end of the database. The highest valid database address, therefore, will depend on the targeted data type, as well as the number of items to be accessed.

#### **Data Type**

Fixed at "1 Bit".

#### **Read Function**

Select whether or not to allow the service object to issue read requests. When enabled, the service object will continuously read from the slave unless a pending write exists.

#### **Write Function**

Select whether or not to allow the service object to issue write requests, and the command to use when enabled. When values encompassed by this service object change in the internal database and writes are enabled, these changes will be written down to the targeted slave.

Note that not all points support the Write A Point (07H) command. Points such as set points and setup parameters that typically do not change once they've been established may reject this command with a Security Error, which can be seen when using a Diagnostics Object. For these points, the Memorize A Point (75H) command must be used. Because the Memorize A Point (75H) command writes to both RAM and EEPROM on the slave device, while the Write A Point (07H) command writes only to RAM, it is recommended to only use the Memorize A Point (75H) command when absolutely necessary.

## 1.4 Override Release Trigger (excludes XLTR-1000)

Each commandable service object, i.e. Output service objects, can optionally include an override release trigger to release a previously written override value. The trigger is assigned to



a byte in the database. When a write is detected at this database address, the trigger value is reset to 0, and a release request is sent to all points defined in the service object.

**Release Trigger Database Address**

Specifies the database address to use to trigger the release request.

## **1.5 Diagnostics Object**

Each service object can optionally include a diagnostics object for debugging and diagnostics.

**Diagnostics Database Address**

Enter the database address at which to store the diagnostics information.



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