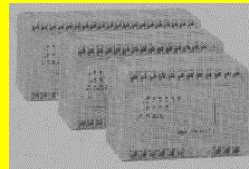


# Idec PLC Drivers for Lookout



**Micro-1**



**FA-Series**



**Micro<sup>3</sup>**

## Object Class Definitions – Documentation Package



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Revised, 11 October, 1999

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# Idec PLC Drivers for Lookout

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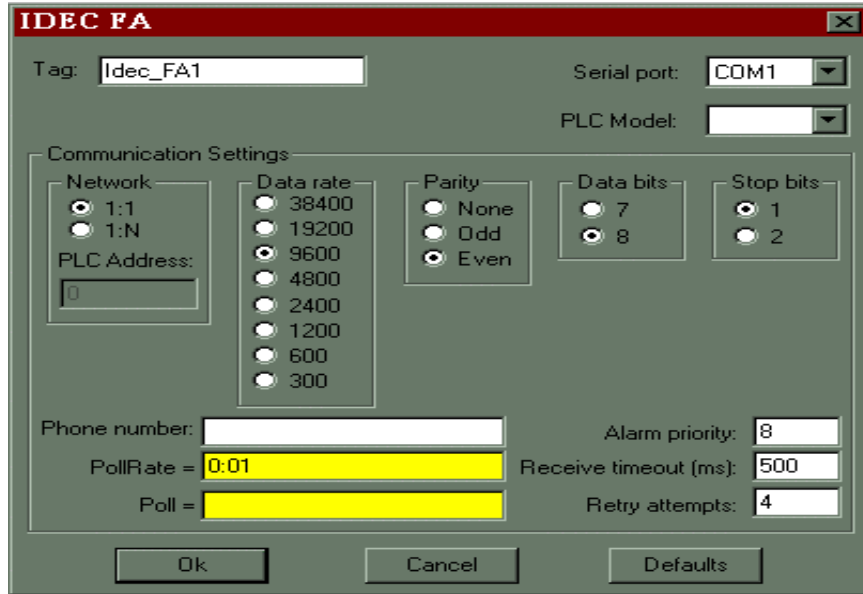
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## Idec\_Fa-Series

*Idec\_FA is a protocol driver class that allows Lookout to communicate with Idec Corporation FA-Series and Idec Micro-1 programmable logic controllers (PLCs) using Idec's proprietary protocol.*

**Note** This object class is available for use with Version 3.8. It has not been tested for compatibility with earlier versions nor with 4.x.



*Idec\_FA definition parameters dialog box*

### Idec\_FA Parameters

**Address** is the PLC's multidrop address as configured at the device. We *strongly* recommend using multidrop since the 1:1 protocol is very inefficient. Even for one FA unit under control, please use multidrop.

**Serial Port** specifies which port the object will use for communication to the external device. This does not specify the communication type. Communication type is determined by the Options→Serial Ports... command.

**Data rate, Parity, Data bits, and Stop bits** reference the settings on the hardware device. The FA-Series devices use 9600-Even-8-1 and are set as the default values. Some radios need to use different settings but this will be transparent to the FA-Series and the settings required by the radio need to be used here.

**Alarm Priority** determines the priority level of object-generated alarms (0-10 where 10 is the highest priority).

**Phone number** specifies the number to be dialed if the serial port setting is configured for dial-up. This number only applies to the individual protocol object.

**PollRate** is a numeric expression that determines how often to poll the device. Lookout converts the numeric value of **PollRate** into a time signal that represents days and fractions of a day. Idec\_FA then polls the device at the specified time interval. Normally, this will be a simple time constant such as 0:01 (one second). *See Numeric Data Members in Chapter 5 for information on entering time constants.*

**Poll** is a logical expression than, when transitioned from false to true, causes Lookout to poll the device. This could be a simple expression like the signal from a pushbutton, or a complex algorithm.

**Retry attempts** specifies the consecutive number of times Lookout attempts to establish communications with a device if it is not getting a valid response. After it tries the number of **Retry attempts** specified, the Idec\_FA object generates an alarm and releases the communication port back to the communications subsystem (COMSUB) which then moves on to the next device in the polling queue (if any).

**Receive timeout** is the time delay Lookout uses in waiting for a response from a device before retrying the request.

### **Idec\_FA Data Members**

This protocol driver object contains a great deal of data. All readable and writable members (inputs/outputs), polling instructions, read/write blocking, serial port usage, etc. are bundled with the object. Therefore, as soon as you create an Idec\_FA object you immediately have access to all that object's data members (see data member list below).

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**Caution** Idec PLCs are modular in construction. Because of this, Lookout does not “know” what the physical configuration of your particular PLC model may be. The data member table allows *all* factory-defined allocation numbers for the object you create – it is *your* responsibility to be sure that your physical device actually supports the members you access!

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**Note** Lookout's protocol driver objects automatically generate an efficient read/write blocking scheme based on the inputs and outputs being used in your process file. You are not required to build your own I/O blocking table.

*Idec\_FA data members*

<b>Data Member</b>	<b>Type</b>	<b>Read</b>	<b>Write</b>	<b>Description</b>
C000-C255	numeric	yes	no	14-bit counter of unsigned integer values between a range of 0 to 9999.
CommFail	logical	yes	no	Object-generated signal that is on if, for whatever reason, Lookout cannot communicate with the PLC.
Cp000-Cp255	numeric	yes	yes	14-bit unsigned integer value in the range of 0-9999 which is the preset register for the data member of C000-C255, respectively.
Cs000-Cs255	logical	yes	no	Transitions from false to true when the data member counter of C000-C255, respectively, reaches the end of its range. For downcounters, the end of the range is zero, for upcounters, it is the value of Cp000-Cp255, respectively.
D000-D999	numeric	yes	yes	16-bit holding register encoded as unsigned binary integers ranging from 0 to 65535.
Db000.00-Db999.15	logical	yes	yes	Bit-wise addressing into 16-bit holding registers. For write operations, the <i>entire 16-bit register</i> is updated whenever any one bit's state changes. It is your responsibility to make sure that your Lookout process has all bits in a known state before changing any datum bit. You must use bit-wise writes with great care! Read operations do not require any special considerations.
H00-H79*	numeric	yes	no	14-bit timer of unsigned integer values between a range of 0 to 9999.
Hp00-Hp79*	numeric	yes	yes	14-bit unsigned integer value in the range of 0-9999 which is the preset register for the data member of H00-H79, respectively.
Hs00-Hs79*	logical	yes	no	Transitions from false to true when the data member timer of H00-H79, respectively, reaches zero.
I000-I317	logical	yes	no	Single-bit discrete input.
M0000-M1317	logical	yes	yes	Single-bit discrete (internal coil).
"O000-O255"	logical	no	no	<i>Invalid members</i> – the ladder programmer must transfer sense to another functionality in the PLC that lasts long enough to be detected by polling.
Poll	logical	no	yes	Lookout expression that when transitioned from false to true causes the device to be polled.
PollRate	numeric	no	yes	Lookout expression that determines the device's polling frequency.
Q000-Q317	logical	yes	no	Single-bit discrete outputs.
R000-R223*	logical	yes	yes	Multiple-bit shift register I/O points.
T000-T255	numeric	yes	no	14-bit timer of unsigned integer values between a

				range of 0 to 9999.
Tp000-Tp255	numeric	yes	yes	14-bit unsigned integer value in the range of 0-9999 which is the preset register for the data member of T000-T255, respectively.
Ts000-Ts255	logical	yes	no	Transitions from false to true when the data member timer of T000-T255, respectively, reaches zero.
Update	logical	yes	no	Object-generated signal that pulses each time the driver polls the device.

\* These members are not implemented in this driver. Also, the extended set of allocation numbers used by the model “5M” plc are not supported.

**Note** The Idec\_FA supports *only* symbolic notation for allocation numbers.

## Status Messages

### No comm. rsp. from IDEC PLC

An attempt was made to establish communications with the PLC without any response. Check your cabling and communication port selections, power, and configuration settings. Make sure that your PLC is actually the FA Series (there is another specific Lookout driver object class for the Idec Micro<sup>3</sup> PLCs).

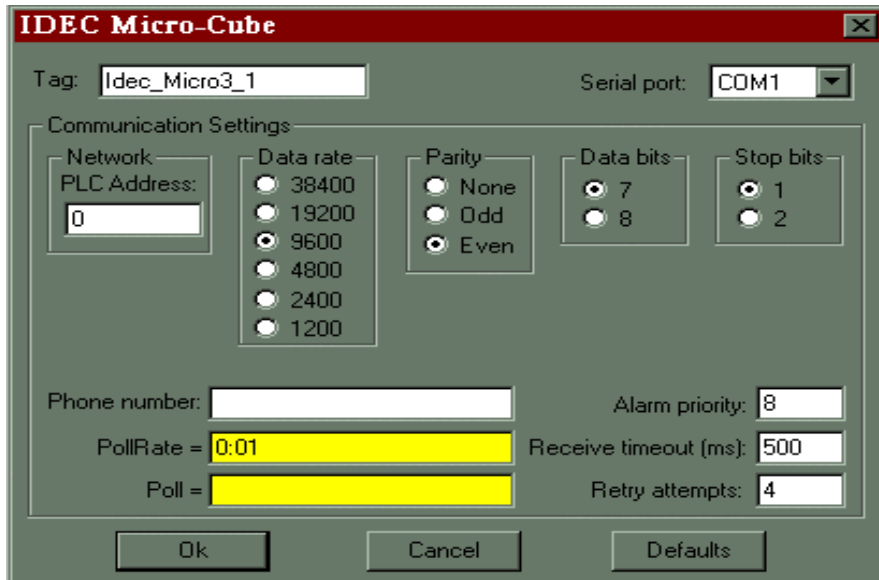
### No response within timeout period

Lookout did not receive the expected response within the **Receive timeout** period. The object sent an inquiry and received an acknowledgement, but the device did not send an expected response to the request. This might happen if the response was interrupted. You may have to increase **Receive timeout**.

## Idec\_Micro3

Idec\_Micro3 is a protocol driver class that allows Lookout to communicate with Idec Corporation Micro<sup>3</sup> programmable logic controllers (PLCs) using Idec's proprietary protocol.

**Note** This object class is available on Version 3.8. It has not been tested for compatibility with earlier versions nor with 4.x.



*Idec\_Micro3 definition parameters dialog box*

### Idec\_Micro3 Parameters

**Address** is the PLC's multidrop address as configured at the device.

**Serial Port** specifies which port the object will use for communication to the external device. This does not specify the communication type.

Communication type is determined by the Options→Serial Ports... command.

**Data rate, Parity, Data bits, and Stop bits** reference the settings on the hardware device. The Micro<sup>3</sup> devices use 9600-Even-7-1 and are set as the default values. Some radios need to use different settings but this will be transparent to the Micro<sup>3</sup> and the settings required by the radio need to be used here.

**Alarm Priority** determines the priority level of object-generated alarms (0-10 where 10 is the highest priority).

**Phone number** specifies the number to be dialled if the serial port setting is configured for dial-up. This number only applies to the individual protocol object.

**PollRate** is a numeric expression that determines how often to poll the device. Lookout converts the numeric value of **PollRate** into a time signal that represents days and fractions of a day. Idec\_Micro3 then polls the device at the specified time interval. Normally, this will be a simple time constant such as 0:01 (one second). *See Numeric Data Members in Chapter 5 for information on entering time constants.*

**Poll** is a logical expression than, when transitioned from false to true, causes Lookout to poll the device. This could be a simple expression like the signal from a pushbutton, or a complex algorithm.

**Retry attempts** specifies the consecutive number of times Lookout attempts to establish communications with a device if it is not getting a valid response. After it tries the number of **Retry attempts** specified, the Idec\_Micro3 object generates an alarm and releases the communication port back to the communications subsystem (COMSUB) which then moves on to the next device in the polling queue (if any).

**Receive timeout** is the time delay Lookout uses in waiting for a response from a device before retrying the request.

### **Idec\_Micro3 Data Members**

This protocol driver object contains a great deal of data. All readable and writable members (inputs/outputs), polling instructions, read/write blocking, serial port usage, etc. are bundled with the object. Therefore, as soon as you create an Idec\_Micro3 object you immediately have access to all that object's data members (see data member list below).

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**Caution** Idec PLCs are modular in construction. Because of this, Lookout does not "know" what the physical configuration of your particular PLC model may be. The data member table allows *all* factory-defined allocation numbers for the object you create – it is *your* responsibility to be sure that your physical device actually supports the members you access!

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**Note** Lookout's protocol driver objects automatically generate an efficient read/write blocking scheme based on the inputs and outputs being used in your process file. You are not required to build your own I/O blocking table.

*Idec\_Micro3 data members*

Data Member	Type	Read	Write	Description
"C00-C31"	--	--	--	Counters are implemented with "TC" codes, below.
CommFail	logical	yes	no	Object-generated signal that is on if, for whatever reason, Lookout cannot communicate with the PLC.
D00-D99	numeric	yes	yes	16-bit holding register encoded as unsigned binary integers ranging from 0 to 65535.
I00-I35	logical	yes	no	Single-bit discrete input.
M000-M297	logical	yes	yes	Single-bit discrete (internal coil).
Poll	logical	no	yes	Lookout expression that when transitioned from false to true causes the device to be polled.
PollRate	numeric	no	yes	Lookout expression that determines the device's polling frequency.
Q00-Q31	logical	yes	no	Single-bit discrete outputs.
R00-R63*	logical	yes	yes	Multiple-bit shift register I/O points.
TC00-TC31	numeric	yes	no	14-bit timer/counter of unsigned integer values between a range of 0 to 9999.
TCp00-TCp31	numeric	yes	yes	14-bit unsigned integer value in the range of 0-9999 which is the preset register for the data member of TC00-TC31, respectively.
TCs00-TCs31	logical	yes	no	Transitions from false to true when the data member timer/counter of TC00-TC31, respectively, reaches the end of its range. For timers and downcounters, the end of the range is zero; for upcounters it is the value of TCp00-TCp31, respectively.
Update	logical	yes	no	Object-generated signal that pulses each time the driver polls the device.

\* These members are not implemented in this driver

**Note** The Idec\_Micro3 supports *only* symbolic notation for allocation numbers.

## Status Messages

### **No comm. rsp. from IDEC PLC**

An attempt was made to establish communications with the PLC without any response. Check your cabling and communication port selections, power, and configuration settings. Make sure that your PLC is actually the Micro<sup>3</sup> (there is a specific Lookout driver object class for the Idec FA-Series PLCs).

### **No response within timeout period**

Lookout did not receive the expected response within the **Receive timeout** period. The object sent an inquiry and received an acknowledgement, but the device did not send an expected response to the request. This might happen if the response was interrupted. You may have to increase **Receive timeout**.