Emerson Process Management

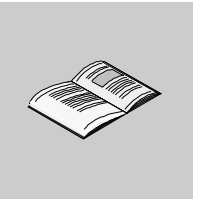
ROC Plus TCP/IP Driver

03/2012

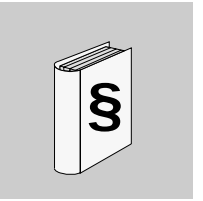
EIO0000001146.01

www.schneider-electric.com

Table of Contents



Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

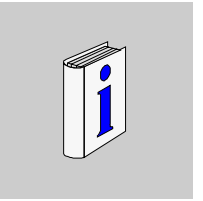
NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book



At a Glance

Document Scope

This manual describes the device driver communication settings in the Vijeo Designer screen editing software. Vijeo Designer enables you to design Magelis target machines that communicate with PLCs, drives, field devices, and other equipment.

For more information about Vijeo Designer and Magelis target machines, please refer to Vijeo Designer user documentation.

Validity Note

The data and illustrations found in this book are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be construed as a commitment by Schneider Electric.

Documentation Conventions

Target Machine: Human-Machine Interface (HMI) that runs user applications designed in Vijeo Designer screen editing software. A target machine is also known as a terminal.

Product Related Information

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.*
- Each implementation of a Magelis XBTGT, HMISTO, HMISTU, HMIGTO, XBTGH, XBTGK, XBTGC, iPC, and XBTGTW must be individually and thoroughly tested for proper operation before being placed into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

* For additional information, refer to NEMA ICS 1.1 (latest edition), “Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control.“

User Comments

We welcome your comments about this document. You can reach us by e-mail at techcomm@schneider-electric.com.

ROC Plus TCP/IP Driver

1

Subject of this Chapter

This chapter explains Emerson Process Management's ROC Plus TCP/IP driver.

What's in this Chapter?

This chapter contains the following topics:

System Structure

Overview

The following table describes the basic system setup for connecting Emerson Process Management's external devices to target machines.

Note:

- All Vijeo Designer target machines with Ethernet capability support the ROC Plus TCP/IP driver, except for the XBTGT1130.

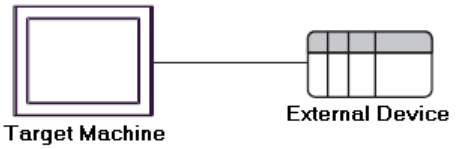
Connection

Connect a commercially available Ethernet cable from a hub to both the target machine's LAN connector and to the ROC series Ethernet socket.

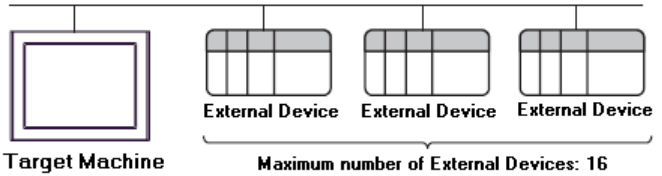
Series	CPU	Ethernet Module
ROC	ROC 300	Ethernet Interface Module
	ROC 800 (809, 827)	
	DL8000	
ROCPAC	ROCPAC 306 ROCPAC 312 ROCPAC 364	
Rosemount	Rosemount 3095FC	
FloBoss	FB103 FB107	
	FB407 FB503 FB504	

For all other ROC Plus equipment, refer to the manufacturer's documentation to determine the connection.

1:1 Connection



1:n Connection



Supported Devices

Overview

The entire range of Type, Logical, Parameter (TLP) settings are supported for all Emerson Process Management models/series listed in this manual.

In the following example for the TLP address `[PLC1]92,0,3:UINT8`, the address components are described in the table below.

TLP Component		Description
92	=	Point Type value for 92 Logon Parameters (LOGON)
0	=	Logical (location) value for 1
3	=	Parameter value for keypad Security Level - Write Enabled
UINT8	=	Data type

You can find details on each TLP in the ROC user manuals and the ROC Plus Protocol Reference from Emerson Process Management.

Custom TLPs are also supported for point types and parameters outside the standard set.

Device Address Configuration

Overvew

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

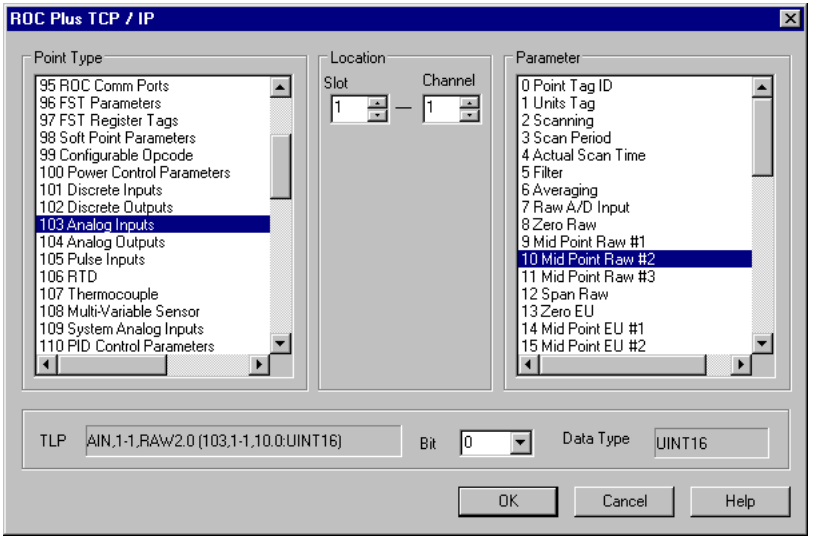
Read and understand the instructions in this section to ensure data is properly transferred. If you do not follow these instructions, incorrect data could be written to the PLC and the target machine.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

To set up a PLC variable use Input Address Settings or Custom Input Address Settings.

Input Address Settings

To enter the device address, in the [Variable Properties] dialog box, select the ROC driver in the ScanGroup property. Then click the ellipsis beside the Device Address text box to open the following address settings dialog box.

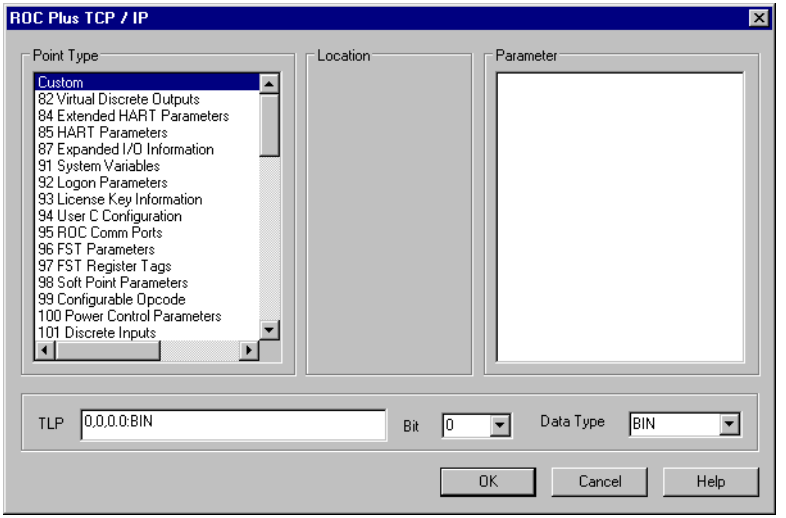


Screen Description

Area		Description
Point Type		A list that contains the point types available from the ROC database. Select a point type from the list.
Location		A point type location. Enter an integer from 0 to 255.
	Slot	The slot number for the physical point type. This property displays only if you selected a physical slot type. Enter an integer from 0 to 255.
	Channel	The channel number for the physical point type. This property displays only if you selected a physical slot type. Enter an integer from 0 to 255.
Parameter		Select a parameter for the point type. Parameters vary depending on the point type selected.
TLP		The TLP address string that corresponds to the selections above. The TLP property is read only.
Bit		This property is available if you selected BOOL for the variable type and only for certain point types. Select a value from the drop-down list box.
Data Type		This property indicates the data type of the parameter selected above and is read only.

Custom Input Address Settings

You can also set up custom TLP addresses by entering the numeric TLP data in the Device Address property in the [Variable Properties] dialog box. Or you can click the ellipsis beside the Device Address text box to open the following address settings dialog box and then selecting the Custom point type.



Screen Description

Area	Description
Point Type	A list that contains the point types available from the ROC database. Select Custom from the list.
Location	When Custom point type is selected, no Location properties display.
Parameter	When Custom point type is selected, no parameters are displayed.
TLP	The TLP address string that corresponds to the selections above. Enter the TLP in numeric format.
Bit	This property is available if you selected BOOL for the variable type and only for certain point types. Select a value from the drop-down list box.
Data Type	This property indicates the data type of the parameter. Select the data type from the drop-down list box.

Valid Formats for Custom Input Address Settings

In the TLP property, enter the TLP. The valid formats are:

- `[PLC1]TT,LL,PP:DATATYPE`
- `[PLC1]TT,LL,PP.BIT:DATATYPE`

The addresses represent the following components:

TLP Component		Description
[PLC1]	=	External device
TT	=	Point Type (range 0 to 255)
LL	=	Logical (range 0 to 255)
PP	=	Parameter (range 0 to 255)
BIT		Bit range 0-7, 0-15, or 0-31. Available only for the following data types: BIN, INT8, INT16, INT32, UINT8, UINT16, UINT32.
UINT8	=	Data type

Note:

- If you entered a custom TLP that matches a TLP in the Emerson database, the TLP will revert to the address and data type in the database.

The following table lists valid Data Type strings you can enter in the Device Address property are listed in the following table.

Name	Description
AC1	ASCII 1 character
AC3	ASCII 3 characters
AC7	ASCII 7 characters
AC10	ASCII 10 characters
AC12	ASCII 12 characters
AC20	ASCII 20 characters
AC30	ASCII 30 characters
AC40	ASCII 40 characters
BIN	Binary 8 bit, or bit address 0-7*
FL	Floating Point
INT8	8 bit signed integer, or bit address 0-7*
INT16	16 bit signed integer, or bit address 0-15*
INT 32	32 bit signed integer, or bit address 0-31*
TIME	32 bit signed integer

Name	Description
TLP	24 bit integer in 32 bits
UINT8	8 bit unsigned integer, or bit address 0-7*
UINT16	16 bit unsigned integer, or bit address 0-15*
UINT32	32 bit unsigned integer, or bit address 0-31*

* Read-modify-write. When you write to one of these bit addresses, the target machine reads the entire word address, sets the defined bit, then returns the new value to the PLC. If the ladder program writes data to this word address during the bit read/write process, the resulting data may be incorrect.

I/O Manager Configuration

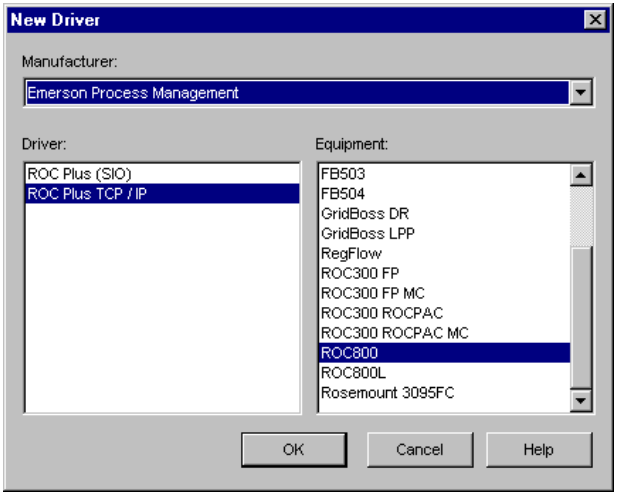
Overview

The driver and equipment, which enable communication between the target machine and the PLC, depend on the PLC type.

Note:

- For information on how to display the [New Driver] dialog box, see the Vijeo Designer Online Help.

Screen Example of I/O Manager Configuration



Equipment Configuration

Overview

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

Read and understand the instructions in this section to ensure data is properly transferred. If you do not follow these instructions, incorrect data could be written to the PLC and the target machine.

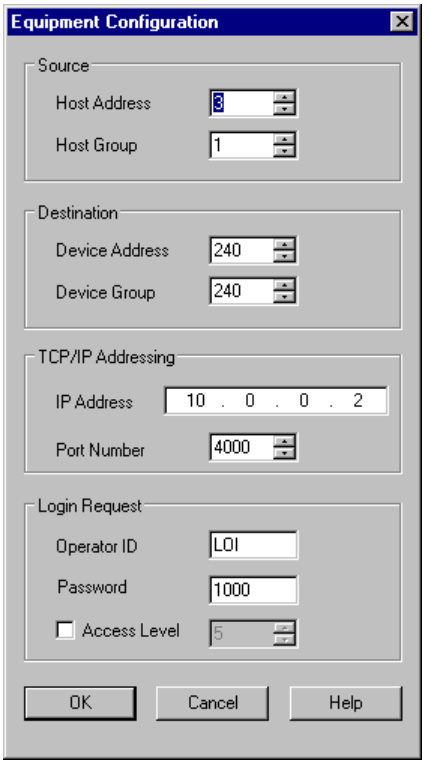
Failure to follow these instructions can result in death, serious injury, or equipment damage.

To set up details about the communication process between the target machine and the PLC, use the [Equipment Configuration] dialog box.

Note:

- For information on how to display the [Equipment Configuration] dialog box, see the Vijeo Designer Online Help.

Screen Example of Equipment Configuration



Screen Description

Area	Description
Host Address	The communication address of the target machine. Enter a value from 1 to 255.
Host Group	The communication group of the target machine. Enter a value from 0 to 255.
Device Address	The communication address for the specific ROC. Enter a value from 1 to 255
Device Group	The communication group for the specific ROC. Enter a value from 0 to 255.
IP Address	Enter the ROC's IP address.
Port Number	The ROC's port. Enter a value from 1 to 65,535.

Area	Description
Operator ID*	The login ID defined for the ROC. Enter a maximum of 3 characters with no spaces.
Password*	The password defined for the ROC. Enter a value from 0-9999.
Access Level*	Select the check box to define the security access level for the operator. Select the access level, from 0 to 5, in the corresponding text box.

* Login Request settings (Operator ID, Password, and Access Level) must match the settings on the ROC. If the settings do not match, an error will display.