
PanelMate®
Omron
Communication Driver Manual

Preface

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e-TRC

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This center, located in Zurich, Switzerland, provides high-level quality support and product repair services for your PanelMate products. You will receive real-time technical and application support.

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Introduction

1

In this chapter, you will learn:

- *How to install driver software*
- *How to download drivers to a PanelMate unit*
- *The supported memory types*

Introduction

The Operator Station can be used with the programmable controllers in the Omron C Series (C20K, C28K, C40K, C60K, C20, C20H, C28H, C40H, C200H, C120, C500, C1000H, and C2000H), the CV Series (CV400 and CV1000), the CS1 Series (CS1G, CS1H) and the CQM Series (CQM1).

Note: Check the Cutler-Hammer web site for current information on PanelMate PC connectivity to the Omron driver.

Installing Drivers

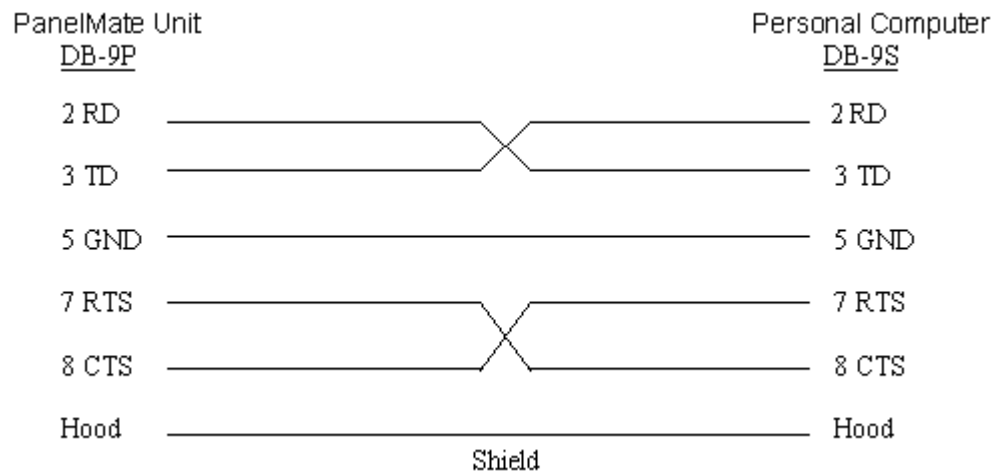
PanelMate Configuration Editor software is installed using a CD-ROM. To install the drivers from the CD-ROM, select the **Install Software** option and then **Install Drivers**. From the dialog box, select the driver you wish to install.

Downloading Drivers to a PanelMate Unit

- In the VCP Transfer Utility, choose the “Executive” tab and select the proper Executive Firmware to download to the PanelMate unit.
- Click the button labeled “Add to Operation List.”
Note: In order to download to a PanelMate for the first time or to clear the existence of another driver, the PanelMate must first be loaded with Executive Firmware.
- Choose the “Driver” tab.
- Select the appropriate driver to be downloaded to the PanelMate.
- Click the button labeled “Add to Operation List.”
- Place the PanelMate unit in Serial Transfer Mode.
- Connect a serial transfer cable from the correct port on the PC to port 1 on the PanelMate. (See cabling below.)
- Click “Start” at the bottom of the VCP Transfer Utility window.
- **Note:** For a more detailed description of downloading procedures and troubleshooting see *PanelMate Power Series, PowerPro, Pro LT Transfer Utility User’s Guide*.

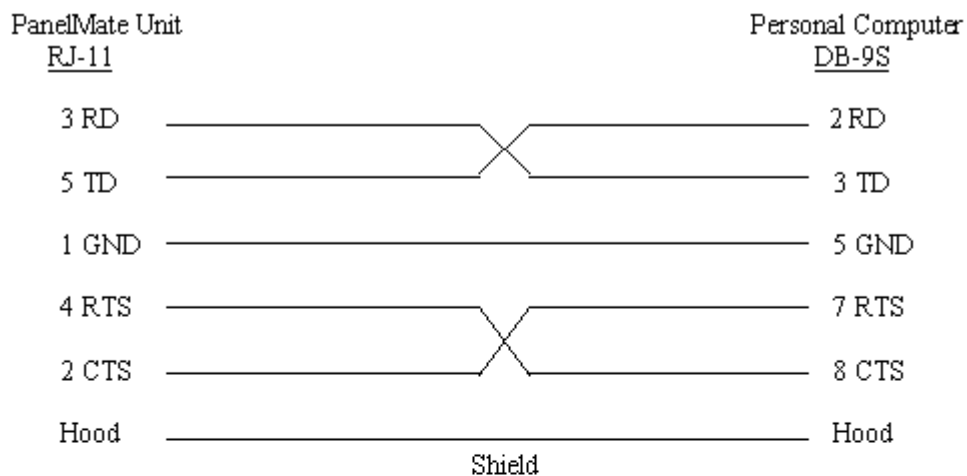
Serial Transfer Cables

Cable P/N 0518

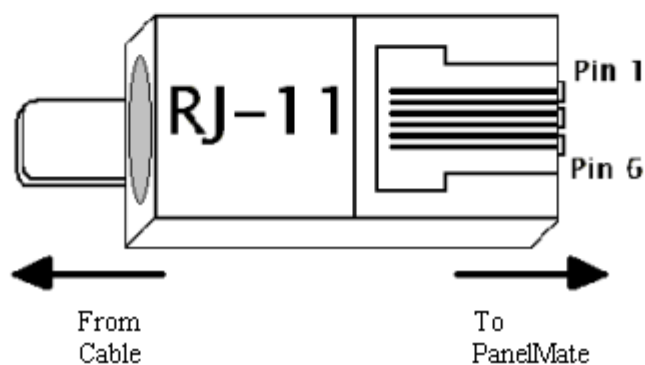


Cable P/N 0818

(PanelMate Power Series 1500 and PanelMate 500 only)



RJ-11 pin configuration



Memory Types

The following list contains the memory types supported by the Omron CQ_C Series driver.

IR	I/O and Internal Relay
HR	Holding Relay
TC	Timer/Counter
DM	Data Memory
LR	Link Relay
AR	Auxiliary Relay
EM	Extended Memory

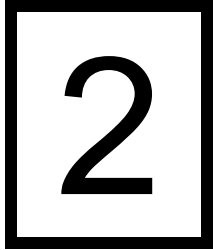
The following list contains the memory types supported by the Omron CS_CV Series driver.

CIO	I/O and Internal Relay
A	Auxiliary Relay
T	Timer
D	Data Memory
H	Holding Area
C	Counter
E	Extended Memory

The Open Host Link protocol (C-mode and CV-mode) is common to all Omron PLCs. Host Link protocol does not directly support bit writes, although the protocol will allow devices to force bits on and off. The Omron driver has been implemented to force bits on and off. At power up, the ladder logic in the PLC should write zeroes to all of the bit areas addressed by the Operator Station for control buttons. This will ensure that in the event that power is lost to the PLC during the time a control button is pressed, all of the bit areas are returned to a zero state. The IR and LR memory types are not retentive except for the C200H. After power is lost, control over these areas returns to the PLC ladder logic program. The C200H processor is different from all of the other C and CV CPUs because it has the ability to set whether or not these bit areas are retentive. The C200H should be set up to be non-retentive for these bit areas. A bit in the special relay memory determines whether or not the memory is retentive. The Operator Station cannot write to special relay memory. You must use your programmer to access special relay memory.

Note: Omron markets the P series models (C20P, C28P, C40P, and C60P) and the F series models (C120F and C500F) overseas. The P series can be configured like the K series models (C20K, C28K, C40K, and C60K) and the F series can be configured like the C120 and C500 models.

Possible Configurations

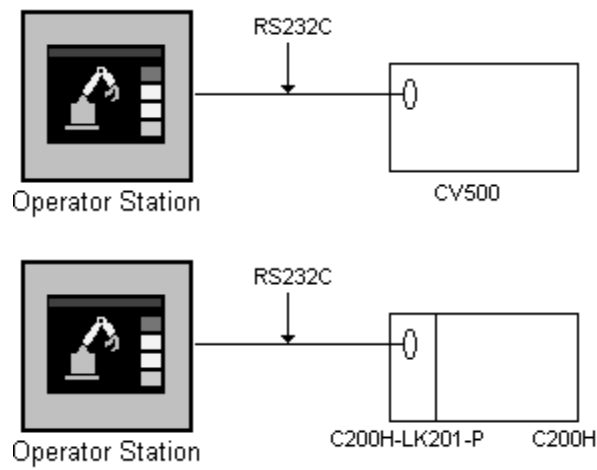


In this chapter, you will learn:

- *How to connect an operator station to Omron PLCs*

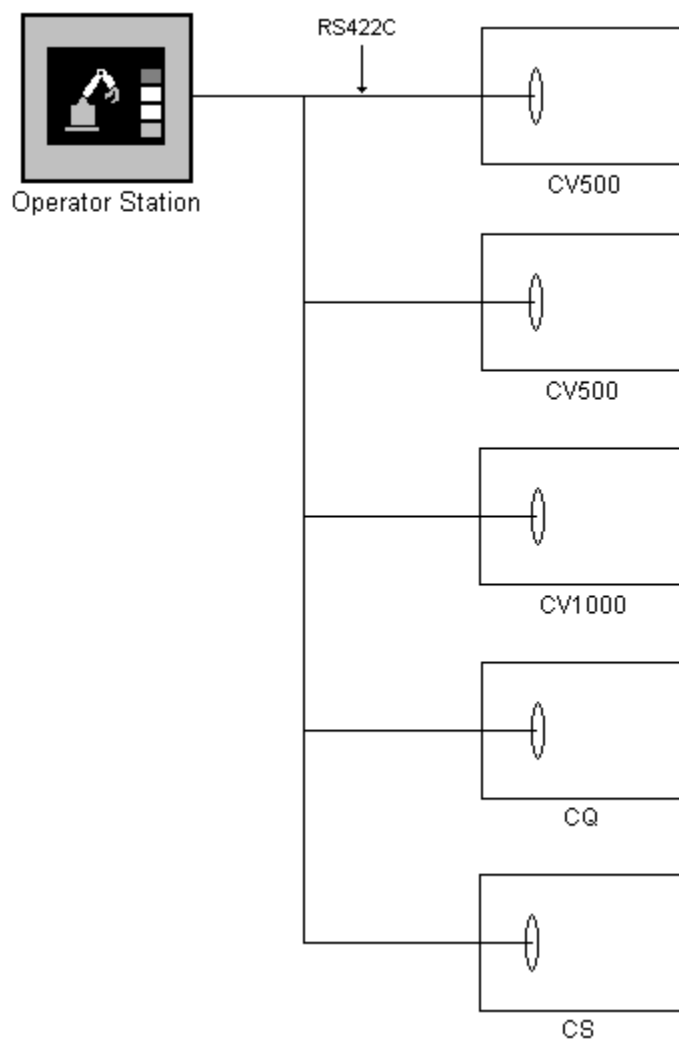
Direct Connection

The figures below show a direct connection between the Operator Station and the processor.



Network Connection

The following figure shows a network consisting of three PLCs and an Operator Station.



Cabling

3

In this chapter, you will learn:

- *The cabling requirements for Omron PLCs*

Cable Configurations

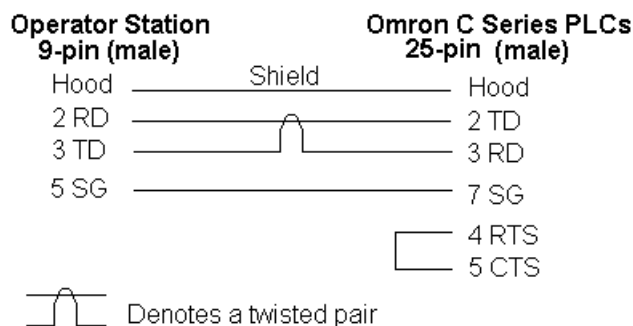
The following tables show the pinouts for the Omron C Series, CV Series, CQ Series, and CS Series PLCs. The Omron driver supports RS232C and RS422 communications. The maximum cable length when using RS232C is 50 feet, while the maximum cable length for RS422 is 4000 feet. RS422 cable must be a twisted double-wire shielded cable.

A 15-foot PLC cable can be purchased from Cutler-Hammer. Contact the Customer Support Group (listed under Support Services in the Preface) or your local distributor for more information. Cabling catalog numbers are listed with the tables below. They are also listed in the PLC Cabling Cross-Reference List section in Appendix A.

RS232C Cabling for the Omron C Series

Cable Catalog Number: OM21 for all PanelMate Power Series and Power Pro Models

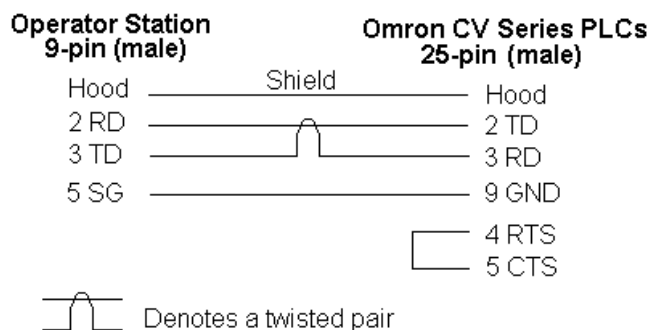
The Operator Stations that have 9-pin female connectors (DB-9S) must have cables configured with male connectors (DB-9P).



RS232C Cabling for the Omron CV Series

Cable Catalog Number: OM22 for all PanelMate Power Series and Power Pro Models

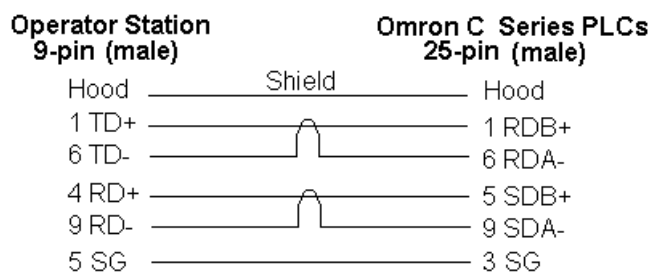
The Operator Stations that have 9-pin female connectors (DB-9S) must have cables configured with male connectors (DB-9P).



RS422 Cabling for the Omron C Series

Cable Catalog Number: OM23A for all PanelMate Power Series and Power Pro Models

The Operator Stations that have 9-pin female connectors (DB-9S) must have cables configured with male connectors (DB-9P).

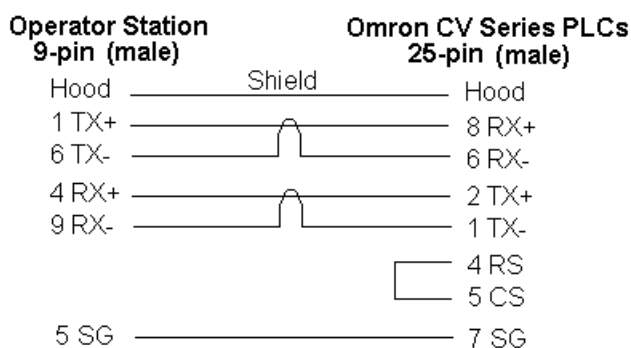


 Denotes a twisted pair

RS422 Cabling for the Omron CV Series

Cable Catalog Number: OM24A for all PanelMate Power Series and Power Pro Models

The Operator Stations that have 9-pin female connectors (DB-9S) must have cables configured with male connectors (DB-9P).

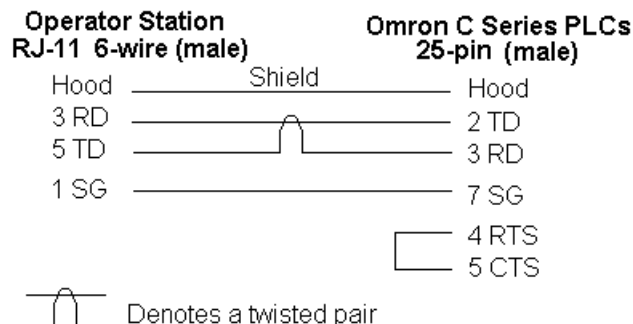


 Denotes a twisted pair

RS232C Cabling for the Omron C Series

Cable Catalog Number: OM21 for all PanelMate Power Series and Power Pro Models

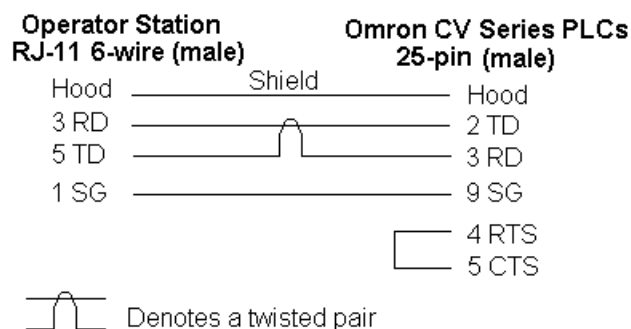
The Operator Stations that have RJ-11 6-wire modular jacks must have cables configured with male modular connectors.



RS232C Cabling for the Omron CV Series

Cable Catalog Number: OM22 for all PanelMate Power Series and Power Pro Models

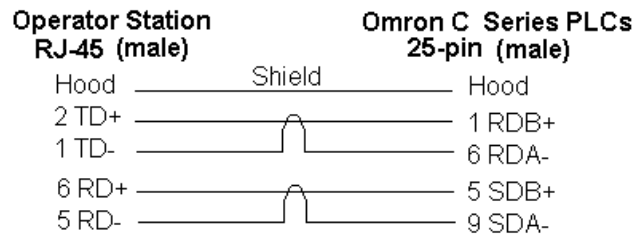
The Operator Stations that have RJ-11 6-wire modular jacks must have cables configured with male modular connectors.



RS422 Cabling for the Omron C Series

Cable Catalog Number: OM23A for all PanelMate Power Series and Power Pro Models

The Operator Stations that have RJ-45 modular jacks must have cables configured with male modular connectors.

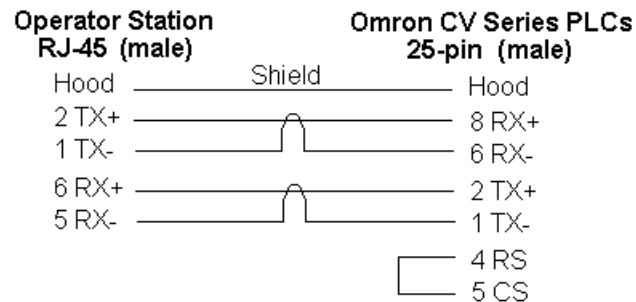


Denotes a twisted pair

RS422 Cabling for the Omron CV Series

Cable Catalog Number: OM24A for all PanelMate Power Series and Power Pro Models

The Operator Stations that have RJ-45 modular jacks must have cables configured with male modular connectors.



Denotes a twisted pair

RS232C Cabling for the Omron CQ and CS Series

The Operator Stations that have 9-pin female connectors (DB-9S) must have cables configured with male connectors (DB-9P).

For proper communication, the following parameters must be observed:

- Use Omron HostLink driver
- Communication parameters are 7 data bits, 2 stop bits, even parity, 9600 or 19200 baud rate, RS232 electrical

Operator Station Omron CQ & CS Series PLCs

9-pin (male)	9-pin (male)
RX 2	2 TX
TX 3	3 RX
GND 5	9 GND
	4
	5

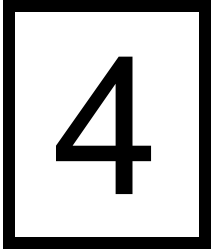
RS232C Cabling for the Omron CQ and CS Series

The Operator Stations that have RJ-11 6-wire modular jacks must have cables configured with male modular connectors.

Operator Station Omron CQ & CS Series PLCs

RJ11 6-wire (male)	9-pin (male)
RX 3	2 TX
TX 5	3 RX
GND 1	9 GND
	4
	5

Communication Parameters



In this chapter, you will learn:

- *The different switch settings*

Default Communications Parameters

The Open Host Link Protocol supports both point-to-point and network interfaces. Both rack-mounted and CPU-mounted Host Link protocol interface links support RS232 and RS422 communication. The default communications parameters are shown below.

Baud rate	300 to 19200
Data bits	7
Parity	Even
Stop bits	2

The Omron PLC ID must be set in the range 00-31 for communications.

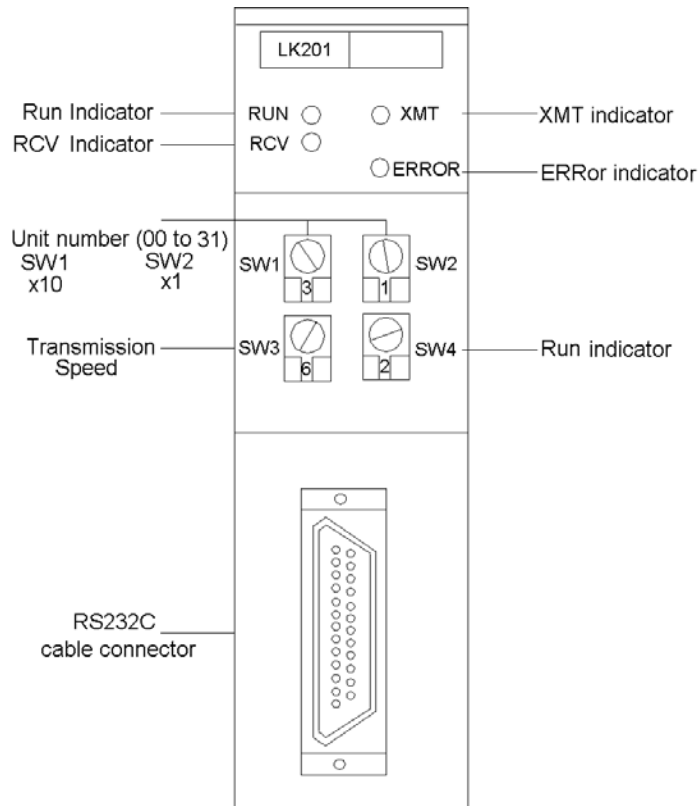
Note: The settings for parameters, such as baud rate, must match the parameters set for the Operator Station.

Communication Module

C200H-LK201-P Module

The C200H-LK201-P communication module is an interface between the Operator Station and the Omron PLC. If you have another communication module, refer to your PLC user manual for more information.

Note: A switch of the same name sometimes has different functions on different units.



Settings for SW1, SW2, SW3 and SW4

SW1 and SW2 set the unit number. Set SW1 to the number for the tens digit in the unit number and set SW2 to the ones digit in the node or unit number. For configuration information for SW3 and SW4, refer to the tables below.

Settings for SW3

0	300 bps
1	600 bps
2	1200 bps
3	2400 bps
4	4800 bps
5	9600 bps
6	19200 bps
7	Do not set
8	Do not set
9	Do not set

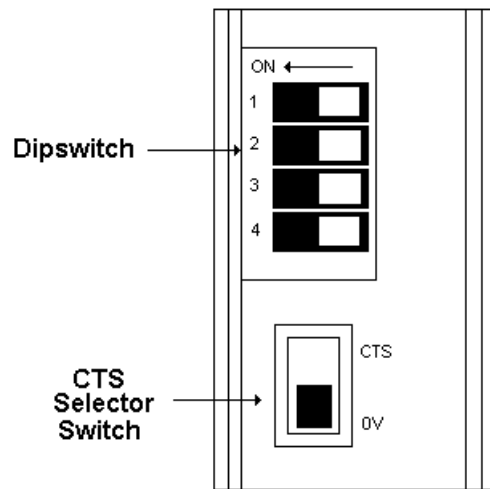
The Operator Station supports all three command levels (1 through 3) of Host Link Unit commands.

Settings for SW4

SW4	Command Level	Parity	Transmission Code
0	1	Even	ASCII 7 bit 2 Stop bits
1	1, 2		
2	1, 2, 3		
3	Do not set		
4	1	Odd	
5	1, 2		
6	1, 2, 3		
7	Do not set		
8	1	Even	JIS 8 bits 1 Stop bit
9	1, 2		
A	1, 2, 3		
B	Do not set		
C	1	Odd	
D	1, 2		
E	1, 2, 3		
F	Do not set		

C200H-LK01 Communication Module (Rear View)

The C200H-LK01 communication module has four dipswitches and a selector switch located on the back of the module.



Dipswitches 1 and 2 are not used and should be set to OFF. Dipswitches 3 configures the module for a single-link or multiple-link and should be set to ON to communicate to the Operator Station. Dipswitch 4 configures the 5 V power supply and you should set as necessary for your application.

The CTS Selector Switch must be set to 0V to communicate to the Operator Station.

CS/CQ System Parameters

The following screens detail the CS/CQ system parameters in the PanelMate software.

System/Configuration Information

User Configuration

Name: CQM1DEM0.PPS
 Version: 4.10
 Date: 4/25/02 Time: 9:06
 Free Bytes: 261220 Used Bytes: 924
 Options: 100 Page, Modicon MODBUS, Advanced Trend Template

Executive Firmware

Company/ID: Cutler-Hammer
 Product: PanelMate Power Pro 1700 Color
 Version: 6.03b6 Model: 100 Page
 Network: None
 Options: High Capacity Unit, Dynamic Graphics, Modicon MODBUS, DH-485, Advanced Trend Template, Option Memory Expansion

Installed Drivers

Omron Open Host Link V4.92

OK Save ... Help

PLC Name and Port Table

Port Parameters

Port	Device Use	Local ID
1	(No Usage)	
2	Omron Open Host Link	5
1/0	(Unequipped - No interface board)	

Device Use: (No Usage) Local ID: 0

Port Settings...
 Unsolicited Device...

PLC Name Parameters

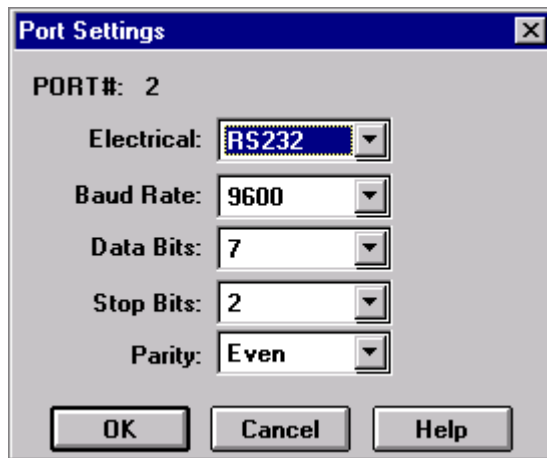
Item	Name	Port	Model	Remote	Tag	File Path & Name
1	plc1	2	CQ/C Series	0		
2	< New entry >					

Add
 Change
 Copy
 Paste
 Delete

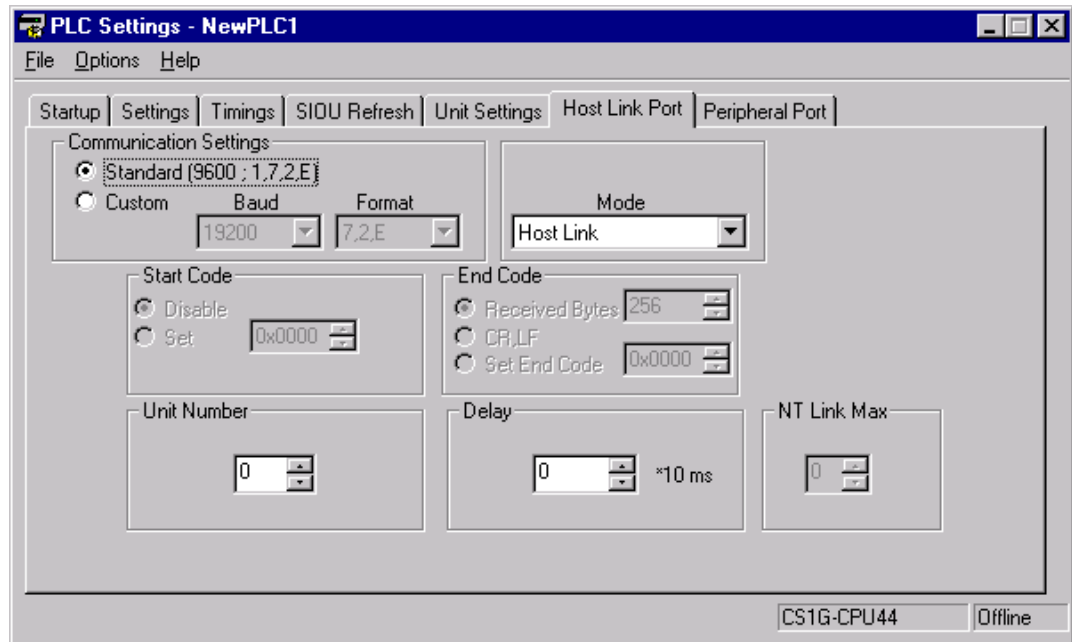
Name: plc1 Model: CQ/C Series Tag File...

Port: 2 Remote ID: 0 Default PLC Name: plc1

OK Cancel Help



Settings in the Omron Software Set to match the PanelMate PLC Name and Port Table are shown below.



Network Settings [SYSMAC WAY]

Network | Driver | Modem

Connection

Port Name: COM2

Baud Rate: 9600

☐ Baud Rate Auto-Detect

Data Format

Data Bits: 7

Parity: Even

Stop Bits: 2

Make Default

OK Cancel Help

Network Settings [SYSMAC WAY]

Network | Driver | Modem

FINS Source Address

Network: 0 Node: 0 Unit: 0

FINS Destination Address

Network: 0 Node: 0 Unit: 0

Frame Length

540

Response Timeout (s)

2

Host Link Unit Number

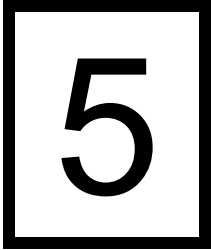
0

Network Operating Level

☒ #0 ☐ #1

OK Cancel Help

Word and Bit References



In this chapter, you will learn:

- *How to configure word and bit references*

Word Referencing Method

The general word referencing method is:

[plcname,word#format]

The "plcname" is the name of the designated PLC as listed in the PLC Name and Port Table. The "word" is the reference number (address) of the word or register to be read or written. The "#format" is a code which specifies the format of the data being read or written. The "plcname" and "#format" are optional if you are using the default PLC and do not wish to change the data format, respectively.

The general bit referencing method is:

[plcname,bit]

The "plcname" is the designated PLC as listed in the PLC Name and Port Table. The "bit" is the reference number (address) of the bit, coil, or input to be written or read.

See the "Word and Bit References" topic in the Configuration Software Online Help for a more detailed explanation of word and bit references, including format descriptions.

The Omron Host Link protocol is supported on the Operator Station for models C20K, C28K, C40K, C60K, C20, C20H, C28H, C40H, C200H, C120, C500, C1000H, C2000H, CV500, CV1000, CQM1, and CS1. These models use decimal register addresses. Bit references are from 0 to 15. The Operator Station's format default is S16.

Note that the PLC reference consists of one-, two- and three-character prefixes that identify the memory type being referenced followed by the specific address.

Note: The use of the memory type code is optional for CIO Area access. In the event a memory type code is not specified, the standard memory type code "CIO" will be assumed.

The following is the format of a register reference.

[plcname, wwnnn]

plcname	Optional PLC name found in the PLC Name Table. If left blank, the default name is used.
,	Optional PLC name delimiter.
ww	The word device memory type.
nnnn	The word number; maximum of 4 characters; leading zeroes are allowed.

The following is the format of a register bit reference.

[plcname, wwnnn.bb]

plcname	Optional PLC name found in the PLC Name Table. If left blank, the default name is used.
,	Optional PLC name delimiter.
ww	The word device memory type.
nnnn	The word number; maximum of 4 characters; leading zeroes are allowed.
.	Bit delimiter character.
bb	Bit number in the range 00-15; leading zeroes are allowed.

The Operator Station will allow the Omron models a maximum of 29 contiguous words for each block read. The maximum number of unused words before another read is generated is 15.

Memory Types Supported by the CS_CV Series Model Family

The CS-CV Model Family will support the memory types identified in this section. The address syntax for each memory type is described here but the individual PLC controller's capabilities actually defines the valid address ranges within each of the memory types.

Reference syntax checking performed by the parser will verify compliance with the addressing scheme of the model family and with the Open Host Link Protocol but will not validate the existence of the reference in the memory range of the specific PLC model. If the access mode of a specific memory type supports write operations, the parser will consider the entire range of that memory type as being accessible for read/write operations for that mode. The specific memory type access modes that do not support write operations have been indicated.

CIO Area

Word Access Syntax

CIOxxxx where:

CIO = Memory type code for CIO Area references
xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

CIOxxxx.yy where:

CIO = Memory type code for CIO Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

Alternate Memory Type Codes

Note: The use of the memory type code is optional for CIO Area access. In the event a memory type code is not specified, the standard memory type code "CIO" will be assumed.

The alternate memory type codes that can be used to access the CIO Area references are 'IR' and 'SR'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'CIO' and not the alternate code.

Holding Area

Word Access Syntax

Hxxxx where:

H = Memory type code for Holding Area references

xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

Hxxxx, yy where:

H = Memory type code for Holding Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Holding Area reference is 'HR'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'H' and not the alternate code.

Timer Present Value Area

Word Access Syntax

Txxxx where:

T = Memory type code for Timer PV Area references

xxxx = Specified word (0-2047) leading 0s not required

Bit Access Syntax

Txxxx, yy where:

T = Memory type code for Timer PV Area references

xxxx = Specified word (0-2047) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Timer Present Value Area references is not supported.

Counter Present Value Area

Word Access Syntax

Cxxxx where:

C = Memory type code for Counter PV Area references

xxxx = Specified word (0-2047) leading 0s not required

Bit Access Syntax

Cxxxx, yy where:

C = Memory type code for Counter PV Area references

xxxx = Specified word (0-2047) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Counter Present Value Area references is not supported.

Timer/Counter Present Value Area

Note that TC memory type code is being supported to provide backwards compatibility to existing PanelMate applications. The TC memory type code can be used to access both the Timer and Counter Present Value Areas. The following are examples of the TC equivalent to the T or C reference:

T0000 = TC0000
T2047 = TC2047
C0000 = TC2048
C2047 = TC4095

Word Access Syntax

TCxxxx where:

TC = Memory type code for Timer/Counter PV Area references
xxxx = Specified word (0-9999) leading 0s not required

The operation of writing words to the Timer/Counter Present Value Area is not supported.

Bit Access Syntax

TCxxxx, yy where:

TC = Memory type code for Timer/Counter PV Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Timer/Counter Present Value Area references is not supported.

Data Memory Area

Word Access Syntax

Dxxxx where:

D = Memory type code for Data Memory Area references
xxxx = Specified word (0-9999) leading 0s not required

The operation of writing words to the Timer/Counter Present Value Area is not supported.

Bit Access Syntax

Dxxxx, yy where:

D = Memory type code for Data Memory Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Data Memory Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Data Memory Area reference is 'DM'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'D' and not the alternate code.

Auxiliary Area

Word Access Syntax

Axxxx where:

A = Memory type code for Auxiliary Area references

xxxx = Specified word (0-9999) leading 0s not required

The operation of writing words to the Auxiliary Area is not supported.

Bit Access Syntax

Axxxx, yy where:

A = Memory type code for Auxiliary Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Auxiliary Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Data Memory Area reference is 'AR'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'A' and not the alternate code.

Extended Memory Area

Word Access Syntax

Exxxx where:

E = Memory type code for Extended Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

Exxxx, yy where:

E = Memory type code for Extended Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Extended Memory Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Extended Memory Area reference is 'EM'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'E' and not the alternate code.

Extended Memory Area – Specified Bank

Word Access withing a Specified Bank Syntax

Eh_xxxx where:

E = Memory type code for Extended Memory Area references

h = Specified bank (0-F hex)

xxxx = Specified word (0-9999) leading 0s not required

Bit Access within a Specified Bank Syntax

Eh_xxxx, yy where:

E = Memory type code for Extended Memory Area references

h = Specified bank (0-F hex)

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Extended Memory Area references is not supported.

Memory Types Supported by the CQ_C Series Model Family

The CQ-C Model Family will support the memory types identified in this section. The address syntax for each memory type is described here but the individual PLC controller's capabilities actually defines the valid address ranges within each of the memory types.

Reference syntax checking performed by the parser will verify compliance with the addressing scheme of the model family and with the Open Host Link Protocol but will not validate the existence of the reference in the memory range of the specific PLC model. If the access mode of a specific memory type supports write operations, the parser will consider the entire range of that memory type as being accessible for read/write operations for that mode. The specific memory type access modes that do not support write operations have been indicated.

Internal Relay Area

Word Access Syntax

IRxxxx where:

IR = Memory type code for Internal Relay Area references
xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

Rxxxx.yy where:

IR = Memory type code for Internal Relay Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

Alternate Memory Type Codes

Note: The use of the memory type code is optional for Internal Relay Area access. In the event a memory type code is not specified, the standard memory type code "IR" will be assumed.

The alternate memory type codes that can be used to access the Internal Relay Area references are 'IR' and 'SR'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'CIO' and not the alternate code.

Link Relay Area

Word Access Syntax

LRxxxx where:

LR = Memory type code for Link Relay Area references
xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

LRxxxx, yy where:

LR = Memory type code for Link Relay Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Link Relay Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Link Relay Area reference is 'L'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'LR' and not the alternate code.

Holding Relay Area

Word Access Syntax

HRxxxx where:

HR = Memory type code for Holding Relay Area references
xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

HRxxxx, yy where:

HR = Memory type code for Holding Relay Area references
xxxx = Specified word (0-9999) leading 0s not required
yy = Specified bit (0-15) leading 0s not required

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Holding Relay Area reference is 'H'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'HR' and not the alternate code.

Timer/Counter Present Value Area

Word Access Syntax

TCxxxx where:

TC = Memory type code for Timer/Counter PV Area references

xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

TCxxxx, yy where:

TC = Memory type code for Timer/Counter PV Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Timer/Counter Present Value Area references is not supported.

Data Memory Area

Word Access Syntax

DMxxxx where:

DM = Memory type code for Data Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

DMxxxx, yy where:

DM = Memory type code for Data Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Data Memory Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Data Memory Area reference is 'D'.

Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'DM' and not the alternate code.

Auxiliary Relay Area

Word Access Syntax

ARxxxx where:

AR = Memory type code for Auxiliary Relay Area references

xxxx = Specified word (0-9999) leading 0s not required

The operation of writing words to the Auxiliary Relay Area is not supported.

Bit Access Syntax

ARxxxx, yy where:

AR = Memory type code for Auxiliary Relay Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Auxiliary Relay Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Auxiliary Relay Area reference is 'A'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'AR' and not the alternate code.

Extended Memory Area – Current Bank

Word Access Syntax

EMxxxx where:

EM = Memory type code for Extended Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

Bit Access Syntax

EMxxxx, yy where:

EM = Memory type code for Extended Memory Area references

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Extended Memory Area references is not supported.

Alternate Memory Type Codes

The alternate memory type code that can be used to access the Extended Memory Area reference is 'E'. Note that in the event a communication error occurs when accessing a reference using the alternate memory type code, the communications error displayed will be mapped to the standard memory type code 'EM' and not the alternate code.

Extended Memory Area – Specified Bank

Word Access within a Specified Bank Syntax

Eh_xxxx where:

E = Memory type code for Extended Memory Area references

h = Specified bank (0-F hex)

xxxx = Specified word (0-9999) leading 0s not required

Bit Access within a Specified Bank Syntax

Eh_xxxx, yy where:

E = Memory type code for Extended Memory Area references

h = Specified bank (0-F hex)

xxxx = Specified word (0-9999) leading 0s not required

yy = Specified bit (0-15) leading 0s not required

The operation of writing bits in Extended Memory Area references is not supported.

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