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Experion PKS
Moore Mycro Interface Reference

EPDOC-XX73-en-431A
February 2015

Release 431

Honeywell

Document	Release	Issue	Date
EPDOC-XX73-en-431A	431	0	February 2015

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Contents

Planning considerations for installing and configuring Moore Mycro controllers

This reference describes how to set up, configure, and test Moore Mycro controller communications with the server.

Revision history

Revision	Date	Description
A	February 2015	Initial release of document.

How to use this guide

The following steps show the order in which the controller interface should be configured. Complete each step before starting the next.

Steps for connecting and configuring a Moore Mycro 352 controller.

Steps	Go to
Set the communication parameters	Communication settings for Moore Mycro
Connect to the server via RS-232 or RS-422	Configuring the Moore Mycro controller
Use Quick Builder to define channels	• Moore Mycro channel and controller reference • *Quick Builder User's Guide*
Use Quick Builder to define controllers	• Moore Mycro channel and controller reference • *Quick Builder User's Guide*
Download channel and controller definitions to the server	*Quick Builder User's Guide*
Test communications	Testing Moore Mycro communications with the server
Use Quick Builder to define points	Defining a Moore Mycro address for a point parameter

Related topics

"Devices supported by the Moore Mycro interface" on page 6
"Other documentation for Moore Mycro" on page 7
"Architectures for Moore Mycro" on page 8
"Communication settings for Moore Mycro" on page 10
"Configuring the Moore Mycro controller" on page 9
"Moore Mycro channel and controller reference" on page 11
"Testing Moore Mycro communications with the server" on page 34
"Defining a Moore Mycro address for a point parameter" on page 18

Devices supported by the Moore Mycro interface

The server specifically supports the Moore Mycro 352 device using this interface. See the *SLDC Link Interface Communications User's Manual* for details on available addresses for this device.

While the interface has not been tested with the following devices, the communication protocol used is the same as the Moore Mycro 352 device. Therefore, this interface should work with the following controllers:

- Moore Model 324 Programmable Sequence Controller
- Moore Model 351 Triple Loop Digital Controller
- Moore Model 382 Logic and Sequence Controller
- Moore Model 383 Multi-Point Display Station

Other documentation for Moore Mycro

The following Moore Products books describe in great detail the address space of all the devices supported by this interface. They also provide information about the physical configuration of the Units. Reading these books would be useful when installing the interface.

- *Model 352 SLDC Link Interface Communications User's Manual*; Part No: AD352-40
- *Model 352 SLDC Installation and Service Instruction*; Part No: SD352

The manuals listed below provide detailed information concerning the configuration of other units.

- *Model 320 Local Instrument Link Independent Computer Interface User's Manual*; Part No: AD320-10
- *Local Instrument Link - Installation & Service Manual*; Part No: SD15492

Architectures for Moore Mycro

"Figure 1: Sample system design—minimum system" describes an example of a system design integrating the server with a network of Moore controllers.

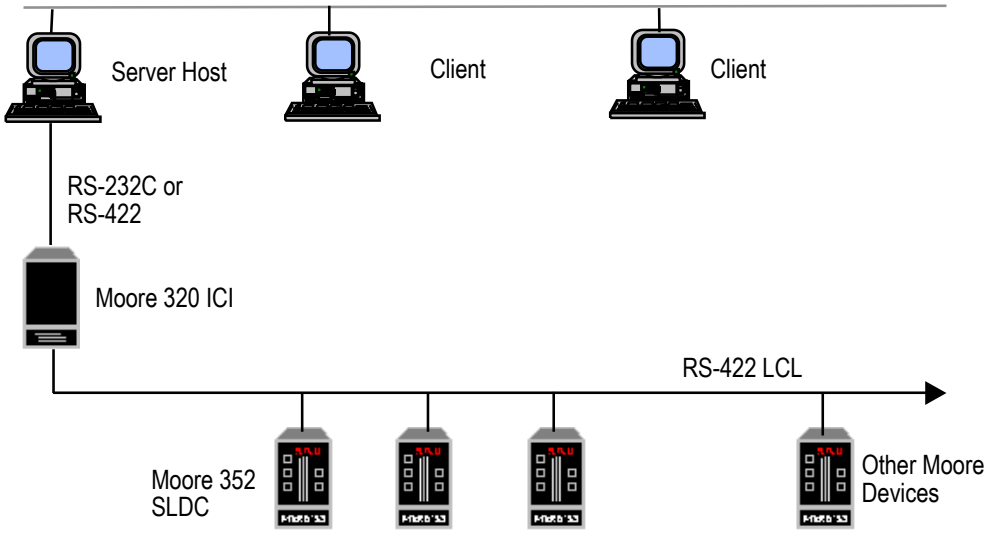

Figure 1: Sample system design—minimum system

The RS-232 and RS-422 server interface to the Moore 320 ICI allows only one connected ICI unit per server channel.

As many as 32 Moore controllers can be connected at once on a single Local Instrument Link (LIL).

Using two links enables up to 64 Moore stations to be connected to a single channel. "Figure 2: Sample system design—expanded system" describes an expanded LIL system.

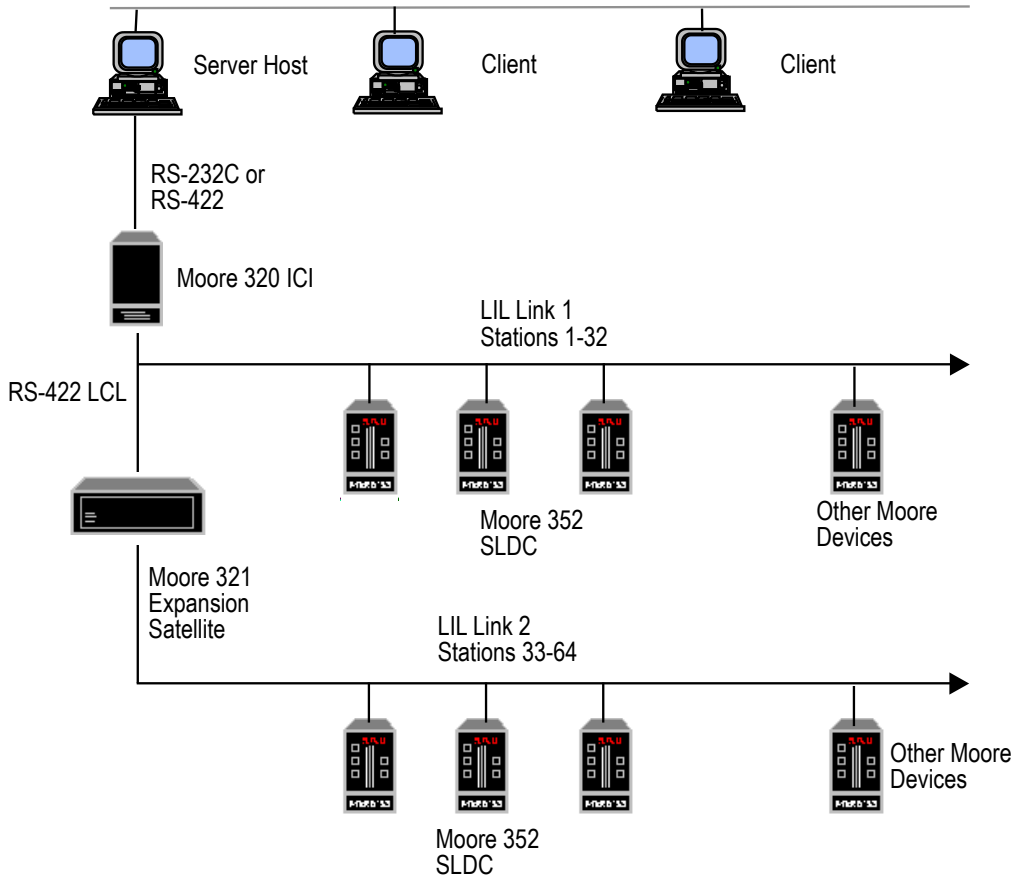

Figure 2: Sample system design—expanded system

Configuring the Moore Mycro controller

Configure the Moore Mycro 352 SLDC and Moore Mycro 320 ICI before connecting to the server. The following configuration must be performed to allow the server interface to communicate correctly with the devices. See the Moore Mycro documentation for details on setting up the following configuration.

To connect Moore Mycro 352 to the server

1. Enable the Link Interface Option Function Block on the Moore Mycro 352 (Function Block 98 on the device), then set up the relevant internal variables in Function Block 98 to point to the appropriate internal variables.
2. Ensure that the Moore is in Console Source mode (as opposed to Computer Source mode). This is verified by building a status point to read Bit 4 of L1ST (see the topic titled "Addresses supported by the Moore Mycro interface" for more information).
3. The Moore 320 ICI must be set up to use Binary Transmission Mode, Link Acknowledge Delay Enabled, and Null Filled Data Enabled.
   Any other configuration of the Moore PLCs should be done by direct hardware configuration, a third-party loader package, or if possible by using the Moore Mycro test utility, **mmutst**. See the topic titled "Testing Moore Mycro communications with the server" for instructions on running the test utility.

Related topics

“Planning considerations for installing and configuring Moore Mycro controllers” on page 5
“Addresses supported by the Moore Mycro interface” on page 20
“Testing Moore Mycro communications with the server” on page 34

Communication settings for Moore Mycro

Set up the communication parameters between the server and the Moore ICI. See the Moore documentation for details on setting up these parameters.

The Unit Address of each device on the Local Instrument Link must be set to a unique value between 1 and 64.

Parity is selectable for the interface between the ICI and the server computer. Parity may be ODD, EVEN, or NONE. Use of parity is recommended.

Bauds are selectable for the interface between the ICI and the server computer. “Table 1: Selectable bauds for Moore 320 ICI” displays selectable bauds for the Moore 320 ICI.

Table 1: Selectable bauds for Moore 320 ICI

Baud	Moore 320 ICI
38,400	Yes
19,200	Yes
9600	Yes
4800	Yes
2400	Yes
1200	Yes
300	Yes

Moore Mycro channel and controller reference

This section describes the configuration and addressing information specific to Moore Mycro channels and controllers.

In addition to the information contained in this reference, and for help to build channels and controllers, see the section titled "Building controllers or channels" in the *Quick Builder User's Guide*.

Related topics

“Main properties for a Moore Mycro channel” on page 12
“Port properties for a Moore Mycro channel” on page 14
“Main properties for a Moore Mycro controller” on page 15
“Optimizing Moore Mycro scanning performance” on page 16
“Planning considerations for installing and configuring Moore Mycro controllers” on page 5

Main properties for a Moore Mycro channel

The Main tab defines the basic properties for a Moore Mycro channel.

For information about how to create a channel, see the topic titled "Building controllers and channels" in the *Quick Builder User's Guide*.

Attention
You need to define one server channel for each connection with a Moore Mycro 320 ICI.

Property	Description
Name	The unique name of the channel. A maximum of *10* alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters (_) appear as spaces.
Description	(Optional) A description of the channel. A maximum of *132* alphanumeric characters, including spaces.
Marginal Alarm Limit	The communications alarm marginal limit at which the channel is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the *Server and Client Configuration Guide*. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the *Server and Client Configuration Guide*. A channel barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call. To calculate an acceptable marginal alarm limit, use the formula: Square root of the number of controllers on the channel × Marginal Alarm Limit defined on those controllers (Normally, you specify the same value for all controllers on a channel). For example, if there are 9 controllers on the channel and their Marginal Alarm Limit is set to *25*, the value would be *3* (which is the square root of 9) *x 25 = 75*.
Fail Alarm Limit	The communications alarm fail limit at which the channel is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the *Server and Client Configuration Guide*. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the *Server and Client Configuration Guide*. Set this to double the value specified for the channel Marginal Alarm Limit.
Connect Timeout	The length of time that the server attempts to connect to the controller. The server will stop trying to connect to the controller once the timeout period passes. The default value *10* seconds. Use the default value unless the communications line has a high error rate, or unless you are using modems.
Read Timeout	The length of time that the server will wait for a reply from the controller. The server will stop waiting once the timeout period passes. The default value is *2* seconds. Use the default value unless the communications line has a high error rate, or unless you are using modems.
Item Type	The type of channel specified when this item was created.
Last Modified	The date and time the channel properties were modified.
Last Downloaded	The date and time the channel was last downloaded to the server.

Property	Description
Item Number	The unique item number currently assigned to this channel, in the format *CHNcc*, where *cc* is the channel number. You can change the item number if you need to match your current server database configuration. The number must be between *01* and the maximum number of channels allowed for your system. For more information about setting the maximum value, see the topic titled "Adjusting sizing of non-licensed items" in the *Supplementary Installation Tasks Guide*.

Port properties for a Moore Mycro channel

The Port tab defines the communication-related properties for a channel. The only Port Type you can define for a Moore Mycro is *serial*.

Attention
The Serial Port settings must match the settings on your communication devices.

Serial port properties

Property	Description
Serial Port Name	The device name of the serial port.
Baud	The number of data bits per second. The default is *9600*.
Number of Data Bits	The number of data bits used for transmission. The default is *8*.
Stop Bits	The number of stop bits used for transmission The default is *1*.
Parity	Defines parity verification of each character and must match configuration on the end device. The default is *NONE*.
Checksum	The type of checksum error detection used for the port. Select the value that matches the setting on the communication device. • *CRC16_0* or *CRC16_1* (if Cyclic Redundancy Check (CRC) is set) • *ONESCOMP* or *TWOSCOMP* (if Longitudinal Redundancy Check (LRC) is set) • *XOR* (If exclusive or is set)
XON/XOFF	The type of XON/XOFF software flow control used to stop a receiver from being overrun with messages from a sender. The types are: • *Input* (use XON/XOFF to control the flow of data on the receive line) • *None* (default) • *Output* (use XON/XOFF to control the flow of data on the transmit line)
Handshaking Options	**RS-232** • **Enable RTS/CTS flow control**. Select if you want to use RTS/CTS for flow control to stop a receiver from being overrun with messages from a sender. • **Detect DCD**. Select if the Data Carrier Detect communication status line of the COM port requires monitoring (usually when using modem or microwave linking). When selected, the communications fails if the desired COM status line is not high—for example, on a dial-up link connection for a modem. • **Detect DSR**. Select if the Data Set Ready communication status line of the COM port requires monitoring (usually when using modem or microwave linking). When selected, the communications fails if the desired COM status is not achieved. **RS-422**. No options available. **RS-485**. Not applicable for Moore Mycro.

Main properties for a Moore Mycro controller

Use the Main tab to define the basic properties for a Moore Mycro controller.

For information about how to create a controller, see the topic titled "Building controllers and channels" in the *Quick Builder User's Guide*.

Property	Description
Name	The unique name of the controller. A maximum of *10* alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters (_) appear as spaces.
Description	(Optional) A description of the controller. A maximum of *132* alphanumeric characters, including spaces.
Channel Name	The name of the channel on which the controller communicates with the server. (You must have already defined a channel for it to appear in this list.)
Marginal Alarm Limit	The communications alarm marginal limit at which the controller is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the *Server and Client Configuration Guide*. To change the priority of the alarm for one controller, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the *Server and Client Configuration Guide*. A controller barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call. The default value is *25*.
Fail Alarm Limit	The communications alarm fail limit at which the controller is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the *Server and Client Configuration Guide*. To change the priority of the alarm for one controller, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the *Server and Client Configuration Guide*. Set this to double the value specified for the controller Marginal Alarm Limit. The default is *50*.
Controller Type	Select the controller type as one of: • 352 Single Loop Digital Controller • 320 Independent Computer Interface • 383 Multi Point Display Station • 351 Triple Loop Digital Controller • 324 Programmable Sequence Controller • 382 Logic and Sequence Controller
Station Address	The station address (LSA) of the Moore Mycro device.
Item Type	The type of controller specified when this item was created.
Last Modified	The date and time the controller properties were modified.
Last Downloaded	The date and time the controller was last downloaded to the server.
Item Number	The unique item number currently assigned to this controller, in the format *RTUnnnnn*. You can change the item number if you need to match your current server database configuration. The number must be between *01* and the maximum number of controllers allowed for your system. For more information about setting the maximum value, see the topic titled "Adjusting sizing of non-licensed items" in the *Supplementary Installation Tasks Guide*.

Optimizing Moore Mycro scanning performance

The maximum amount of data that can be acquired from an controller is influenced by the rate of sending scan packets to the controller. An understanding of the Moore Mycro scan packets will help you configure points so that optimal data acquisition performance can be achieved by maximizing the amount of data acquired with each scan packet.

The scan packets that have been built can be listed by using the utility **lisscn** (list scan). Listing scan packets helps verify the scanning strategy.

For more information about **lisscn**, see the section titled "Command Reference" in the *Server and Client Configuration Guide*.

Moore Mycro scan packets

Up to 100 controller addresses using the same scan period and accessing parameter 1 of the Moore Mycro controller can be combined into a single scan packet. However, addresses not accessing parameter 1 but using the same scan period can only be combined in groups of five into a single scan packet. Therefore, to minimize the number of scan packets, use slower scan periods for all points not accessing parameter 1 and try to use the same scanning period for all these points as well.

Moore Mycro points reference

This section describes how to configure points for a Moore Mycro controller using Quick Builder.

In addition to the information contained in this reference, and for help to build points, see the section titled "Building and configuring points" in the *Quick Builder User's Guide*.

Related topics

“Defining a Moore Mycro address for a point parameter” on page 18

Defining a Moore Mycro address for a point parameter

For **PV Source Address**, **Source Address**, and **Destination Address** the format for a Moore Mycro controller address is:

ControllerName Address

Part	Description
ControllerName	The name of the Moore Mycro controller.
Address	The address in the controller where the value is recorded. Address syntax will depend on the type of address format you select: • **Address Format Option 1**. The preferred form of addressing. See the section below titled "Address Format Option 1" for more information. • **Address Format Option 2**. Explicitly states the channel and parameter number of the parameter required. It should be used only to specify addresses on the device that are *not listed* in the topic titled "Addresses supported by the Moore Mycro interface," or addresses where no mnemonic has been defined. See the section below titled "Address Format Option 2" for more information.

If you would like help with the address, you can use the Address Builder. To display the Address Builder, click ... next to **Address**.

Address Format Option 1

To specify the address of a point parameter in a controller LPU or other controller, the preferred address format is:

A:*Mnemonic* [B:*bb*|*ParamType*]

Part	Description
Mnemonic	ASCII representation of the address. See the topic titled "Addresses supported by the Moore Mycro interface."
bb	(Optional) Bit Number for status point addresses only. Value between 0 and 15. If specified, only the raw bit value is used. Cannot be used in conjunction with *ParamType*. All status point types in server and MD parameters of a point are automatically set to address bits (Status Word type) even if the B: command line is not specified. If the B: is not specified for a status word then the bit offset is set to the default of 0.
ParamType	(Optional) Tuning parameter type override. If specified, will override the parameter type given in the device address definition file, *data/mmu_352_def*. Cannot be used in conjunction with bit number. See the section below titled "Parameter data types."

Example

A:L1S (Loop 1 Set point)

A:L2V (Loop 2 Valve)

A:SS B:6 (Configuration Hold Mode of Station Status Word)

A:ING DIG (Channel G as a Digital)

Address Format Option 2

While the Moore Mycro 352 Interface should work with all addressable parameters, it has not been tested with all of them and its operation is not guaranteed.

The addressing format is:

`C:`*`ccc`* `P:`*`ppp`* `[B:`*`bb`*`|`*`ParamType`*`]`

Part	Description
ccc	Moore Channel (not the server channel) in the Mycro 352, between 1 and 256.
ppp	Moore Parameter, between 1 and 256.
bb	(Optional) Bit Number for status point addresses only. Value between 0 and 15. If specified, only the raw bit value is used. Cannot be used in conjunction with *ParamType*. All status point types in server and MD parameters of a point are automatically set to address bits (Status Word type) even if the B: command line is not specified. If the B: is not specified for a status word then the bit offset is set to the default of 0.
ParamType	(Optional) Tuning parameter type override. If specified, will override the parameter type given in the device address definition file, *data/mmu_352_def*. Cannot be used in conjunction with bit number. See the section below titled "Parameter data types."

Attention

The channel or the parameter can be entered in decimal, hexadecimal or octal. If the channel or parameter is prefixed by 0x, then it is processed as hexadecimal, for example, *C:0x10 P:0x08 = C:16 P:8*. If the channel or parameter is prefixed by 0 then it is processed as octal, for example, *C:010 P:005 = C:8 P:5*. If there is no prefix it is treated as decimal.

Example

C:6 P:3 (Time Integral for Moore 352 Controller #1 with Time scaling)

C:19 P:1 (Channel B Alarm Status word)

C:3 P:1 B:14 (Bit of the status parameter which indicates whether the associated SLDC Station has an error)

C:210 P:20 PRCNT (A previously undefined address at channel 210 parameter 20)

Parameter data types

Eight different parameter data types can be applied to each point address.

Data Type	Description	Counts	Server Scaled
PGAIN	Proportional Gain	–100.0 to 100.0	No
ITIME	Integral Time	0.01 to 1000	No
DTIME	Derivative Time	0.00 to 100.0	No
DGAIN	Derivative Gain	1.00 to 30.00	No
PRCNT	Percentage (Default)	0 to 100.0%	No
STAND	Standard (Scaled)	0 to 100.0%	Yes
C16	One to one mapping	0 to 65535	No
DIG	Mapped Digital	0 or 1	No

The parameter data type STAND is a scaled format of PRCNT and will be scaled by server to a value between the ranges set by the RANGE keyword during the point build. Certain addresses on the Moore 352 device require specific RANGE settings to output the correct value. See the topic titled "Addresses supported by the Moore Mycro interface" for more information.

All the parameter data types are 16-bit (2-byte) words. The default data type for predefined parameters is specified in the device address definition file *mmu_352_def*. The default parameter data type for addresses that

are not defined in the definition file is the Percentage Type. The device address definition file also uses the ASCII string STATS to define addresses which are Status Words.

The parameter data type DIG allows Moore digital addresses to be interpreted as a digital value in the server. The Moore 352 internally stores a digital value as an analog value. It uses the value 0x080 for the value 0 and the value 0xF80 for the value 1. Setting a status point parameter's data type to be DIG causes the server to automatically perform this mapping when reading or writing from a Moore 352 address.

Example

Configure a status point PV address as A:IND DIG

The server will read the analog value at the address IND. If the value is 0xF80 then the status point will be set to 1. If the value is 0x080 then the status point will be set to 0.

Related topics

"Planning considerations for installing and configuring Moore Mycro controllers" on page 5

Addresses supported by the Moore Mycro interface

All the Moore channel parameters listed in the *Moore Model 352 SLDC User's Manual* are addressable. Note that not all parameters are able to be controlled.

The ASCII names for each address are defined in text files found in *server\data*. There is one text file for each type of Moore Mycro device. To add additional ASCII names for addresses or to look up the configured ASCII name for an address, view the associated device address definition file for that device.

Moore Mycro Device	Device Address Definition Filename
Moore 352	mmu_352_def
Moore 320	mmu_320_def
Moore 383	mmu_383_def
Moore 351	mmu_351_def
Moore 324	mmu_324_def
Moore 382	mmu_382_def

Global data parameters (Parameter 1) supported for the Moore 352

Check the Read/Write column to determine which addresses are writable. The interface does not allow any of the database records to be accessed.

Channel	Param Type	Mnemonic	Read/Write	Description
1	C16	SDS	R	Station Data Size ($0026)
2	C16	ST	R	Station Type ($0001)
3	Status word 4	SS	R/W	Station Status
4	C16	SEC	R	Station Error Code
5	Status word 5	FBS	R/W	Function Block Status
6	STAND	L1P	R	Loop 1 Process[1]
7	STAND	L1S	R/W	Loop 1 Set point

[1] For L1P, L1S, L2P, L2S - RANGE in Quick Builder should match the Process HI and LO configured on the device

Channel	Param Type	Mnemonic	Read/Write	Description
8	PRCNT	L1V	R/W	Loop 1 Valve
9	Status word 2	L1ST	R/W	Loop 1 Status
10	Status word 6	L1A	R/W	Loop 1 Alarm Status
11	STAND	L2P	R	Loop 2 Process
12	STAND	L2S	R/W	Loop 2 Set point
13	PRCNT	L2V	R	Loop 2 Valve
14	Status word 15	L2ST	R/W	Loop 2 Status
15	STAND	INA	R	Channel A
16	Status word 7	CAA	R/W	Channel A Alarm Status
17	Status word 8	CAS	R/W	Channel A Status
18	STAND	INB	R	Channel B
19	Status word 9	CBA	R/W	Channel B Alarm Status
20	Status word 10	CBS	R/W	Channel B Status
21	STAND	INC	R	Channel C
22	Status word 11	CCA	R/W	Channel C Alarm Status
23	Status word 12	CCS	R/W	Channel C Status
24	STAND	IND	R	Channel D
25	Status word 13	CDA	R/W	Channel D Alarm Status
26	Status word 14	CDS	R/W	Channel D Status
27	STAND	INE	R	Channel E
28	STAND	INF	R	Channel F
29	STAND	ING	R	Channel G
30	STAND	INH	R	Channel H
31	STAND	O70	R/W	FB98 Output No. 70
32	STAND	O71	R/W	FB98 Output No. 71
33	STAND	O72	R/W	FB98 Output No. 72
34	STAND	O73	R/W	FB98 Output No. 73
35	STAND	O74	R/W	FB98 Output No. 74
36	STAND	O75	R/W	FB98 Output No. 75
37	STAND	O76	R/W	FB98 Output No. 76
38	STAND	O77	R/W	FB98 Output No. 77

Data parameters other than 1 supported for the Moore 352

Channel	Parameter	Param Type	Mnemonic	Read/Write	Description
6	2	PGAIN	PG1	R/W	Proportional Gain for Controller #1
	3	ITIME	TI1	R/W	Time Integral for Controller #1
	4	DTIME	TD1	R/W	Time Derivative for Controller #1
	5	DGAIN	DG1	R/W	Derivative Gain for Controller #1
	6	PRCNT	MR1	R	Manual Reset for Controller #1

Channel	Parameter	Param Type	Mnemonic	Read/Write	Description
	7	STAND	R	R	Ratio for FB07[2]
	8	STAND	B	R	Bias for FB08[3]
7	2	PRCNT	TSP1	R/W	Target Set point for Set point #1
	3	STAND	RT1	R/W	Ramp Time for Set point #1[4]
	4	PRCNT	SPHL1	R/W	Hi Limit setting of HI/LO Limit #1
	5	PRCNT	SPLL1	R/W	Lo Limit setting of HI/LO Limit #1
10	2	PRCNT	L1A1L	R/W	Loop 1 Alarm #1 Limit
	3	PRCNT	L1A2L	R/W	Loop 1 Alarm #2 Limit
	4	PRCNT	L1A3L	R/W	Loop 1 Alarm #3 Limit
	5	PRCNT	L1A4L	R/W	Loop 1 Alarm #4 Limit
	6	Status	L1A1T	R	Loop 1 Alarm #1 Type Word
	7	Status	L1A2T	R	Loop 1 Alarm #2 Type Word
	8	Status	L1A3T	R	Loop 1 Alarm #3 Type Word
	9	Status	L1A4T	R	Loop 1 Alarm #4 Type Word
11	2	PGAIN	PG2	R/W	Proportional Gain for Controller #2
	3	ITIME	TI2	R/W	Time Integral for Controller #2
	4	DTIME	TD2	R/W	Time Derivative for Controller #2
	5	DGAIN	DG2	R/W	Derivative Gain for Controller #2
	6	PRCNT	MR2	R/W	Manual Reset for Controller #2
	7	ITIME	TH	R/W	Time Lead for FB41
	8	ITIME	TL	R/W	Time Lag for FB40
12	2	PRCNT	TSP2	R/W	Target Set point for Set point #2
	3	STAND	RT2	R/W	Ramp Time for Set point #2[5]
	4	PRCNT	SPHL2	R/W	Hi Limit setting for HI/LO Limit #2
	5	PRCNT	SPLL2	R/W	Lo Limit setting for HI/LO Limit #2
16	2	PRCNT	CAA1L	R/W	Channel A Alarm #1 Limit
	3	PRCNT	CAA2L	R/W	Channel A Alarm #2 Limit
	6	Status	CAA1T	R	Channel A Alarm #1 Type Word
	7	Status	CAA2T	R	Channel A Alarm #2 Type Word
19	2	PRCNT	CBA1L	R/W	Channel B Alarm #1 Limit
	3	PRCNT	CBA2L	R/W	Channel B Alarm #2 Limit
	6	Status	CBA1T	R	Channel B Alarm #1 Type Word
	7	Status	CBA2T	R	Channel B Alarm #2 Type Word

[2] For R - RANGE line in Quick Builder should be set to RANGE 0 38.4

[3] For B - RANGE line in Quick Builder should be set to RANGE -100 100

[4] For RT1 - RANGE line in Quick Builder should be set to RANGE 0 3840

[5] For RT2 - RANGE line in Quick Builder should be set to RANGE 0 3840

Channel	Parameter	Param Type	Mnemonic	Read/Write	Description
22	2	PRCNT	CCA1L	R/W	Channel C Alarm #1 Limit
	3	PRCNT	CCA2L	R/W	Channel C Alarm #2 Limit
	6	Status	CCA1T	R	Channel C Alarm #1 Type Word
	7	Status	CCA2T	R	Channel C Alarm #2 Type Word
25	2	PRCNT	CDA1L	R/W	Channel D Alarm #1 Limit
	3	PRCNT	CDA2L	R/W	Channel D Alarm #2 Limit
	6	Status	CDA1T	R	Channel D Alarm #1 Type Word
	7	Status	CDA2T	R	Channel D Alarm #2 Type Word
31	2	C16	SO70	R	Source for FB98 Output #70
32	2	C16	SO71	R	Source for FB98 Output #71
33	2	C16	SO72	R	Source for FB98 Output #72
34	2	C16	SO73	R	Source for FB98 Output #73
35	2	C16	SO74	R	Source for FB98 Output #74
36	2	C16	SO75	R	Source for FB98 Output #75
37	2	C16	SO76	R	Source for FB98 Output #76
38	2	C16	SO77	R	Source for FB98 Output #77

Interpreting Status words

Attention
Parameter types that are not Status words are described in detail in the *Moore Model 352 SLDC User's Manual*.

Status Word	Description
Status Word 02	Loop 1 Status
Status Word 04	Station Status
Status Word 05	Function Block Status
Status Word 06	Loop 1 Alarm Status
Status Word 07	Channel A Alarm Status
Status Word 08	Channel A Status
Status Word 09	Channel B Alarm Status
Status Word 10	Channel B Status
Status Word 11	Channel C Alarm Status
Status Word 12	Channel C Status
Status Word 13	Channel D Alarm Status
Status Word 14	Channel D Status
Status Word 15	Loop 2 Status
Status Alarm Type Words	for Loop1, Channel A, B, C, D

Status Word 02 – Loop 1 Status

Bit	Meaning
0	automatic (1)/manual (0)

Bit	Meaning
1	local control (1)/non local (0)
2	standby sync (1)/no standby sync (0)
3	external (1)/internal (0)
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	ramping set point (1)/no ramping (0)
7	override (1)/no override (0)
8	emergency manual (1)/not em manual (0)
9	configuration hold (1)/not cfg hold (0)
10	HI SP limit (1)/no limit (0)
11	LO SP limit (1)/no limit (0)
12	out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 04 – Station Status

Bit	Meaning
0	not used
1	not used
2	not used
3	database valid (1)/invalid (0)
4	not used
5	not used
6	configuration hold (1)/not cfg hold (0)
7	run mode (1)/config hold (0)
8	not used
9	not used
10	not used
11	config change #1 (1)/reset (0)
12	config change #2 (1)/reset (0)
13	config change #3 (1)/reset (0)
14	error (1)/no error (0)
15	not used

Status Word 05 – Function Block Status

Bit	Meaning
0	alarm #1 FB12 (1)/no alarm (0)
1	alarm #2 FB12 (1)/no alarm (0)
2	deviation alarm FB12 (1)/no alarm (0)

Bit	Meaning
3	flashing bargraph (1)/not flashing (0)
4	lo limit #1 FB09 (1)/no limit (0)
5	hi limit #1 FB09 (1)/no limit (0)
6	lo limit #2 FB51 (1)/no limit (0)
7	hi limit #2 FB51 (1)/no limit (0)
8	emergency local FB98 (1)/not em loc (0)
9	non-updating (1)/normal (0)
10	user status #1 FB15 high (1)/low (0)
11	user status #2 FB15 high (1)/low (0)
12	emergency internal FB11 (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 06 – Loop 1 Alarm Status

Bit	Meaning
0	alarm #1 (1) / no alarm (0)
1	not acked (1) / acked (0)
2	alarm #1 enabled (1) / not enabled (0)
3	alarm #2 (1) / no alarm (0)
4	not acked (1) / acked (0)
5	alarm #2 enabled (1) / not enabled (0)
6	alarm #3 (1) / no alarm (0)
7	not acked (1) / acked (0)
8	alarm #3 enabled (1) / not enabled (0)
9	alarm #4 (1) / no alarm (0)
10	not acked (1) / acked (0)
11	alarm #4 enabled (1) / not enabled (0)
12	link alarms out of service (1) / normal (0)
13	not used
14	not used
15	not used

Status Word 07 – Channel A Alarm Status

Bit	Meaning
0	alarm #1 (1)/no alarm (0)
1	not acked (1)/acked (0)
2	alarm #1 enabled (1)/not enabled (0)
3	alarm #2 (1)/no alarm (0)
4	not acked (1)/acked (0)

Bit	Meaning
5	alarm #2 enabled (1)/not enabled (0)
6	not used
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 08 – Channel A Status

Bit	Meaning
0	not used
1	local control (1)/non local (0)
2	not used
3	not used
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	not used
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 09 – Channel B Alarm Status

Bit	Meaning
0	not used
1	local control (1)/non local (0)
2	not used
3	not used
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	not used

Bit	Meaning
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 10 – Channel B Status

Bit	Meaning
0	not used
1	local control (1)/non local (0)
2	not used
3	not used
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	not used
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 11 – Channel C Alarm Status

Bit	Meaning
0	alarm #1 (1)/no alarm (0)
1	not acked (1)/acked (0)
2	alarm #1 enabled (1)/not enabled (0)
3	alarm #2 (1)/no alarm (0)
4	not acked (1)/acked (0)
5	alarm #2 enabled (1)/not enabled (0)
6	not used
7	not used
8	not used

Bit	Meaning
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 12 – Channel C Status

Bit	Meaning
0	not used
1	local control (1)/non local (0)
2	not used
3	not used
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	not used
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 13 – Channel D Alarm Status

Bit	Meaning
0	alarm #1 (1)/no alarm (0)
1	not acked (1)/acked (0)
2	alarm #1 enabled (1)/not enabled (0)
3	alarm #2 (1)/no alarm (0)
4	not acked (1)/acked (0)
5	alarm #2 enabled (1)/not enabled (0)
6	not used
7	not used
8	not used
9	not used
10	not used

Bit	Meaning
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 14 – Channel D Status

Bit	Meaning
0	not used
1	local control (1)/non local (0)
2	not used
3	not used
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	not used
7	not used
8	not used
9	not used
10	not used
11	not used
12	link alarms out of service (1)/normal (0)
13	not used
14	not used
15	not used

Status Word 15 – Loop 2 Status

Bit	Meaning
0	auto set to '1'
1	local control (1)/non local (0)
2	standby sync set to '0'
3	external/internal set to '0'
4	console control (1)/not console (0)
5	computer control (1)/not computer (0)
6	ramping set point (1)/not ramping (0)
7	override set to '0'
8	emergency manual set to '0'
9	configuration hold (1)/not config hold (0)
10	HI SP limit (1)/no limit (0)
11	LO SP limit (1)/no limit (0)
12	out of service (1)/normal (0)

Bit	Meaning
13	not used
14	not used
15	not used

Status Alarm Type Words – for Loop1, Channel A, B, C, D

Bit	Meaning
0	Alarm Type
1	
2	
3	Alarm Deadband
4	
5	Delay Time IN
6	
7	
8	Delay Time OUT
9	
10	
11	Ringback/Ringback not required
12	not used
13	not used
14	not used
15	not used

where Alarm Type is enumerated as:

Value	Meaning
0	no alarm action required
1	HIGH alarm
2	LOW alarm
3	HIGH DEVIATION alarm
4	LOW DEVIATION alarm
5	ABSOLUTE DEVIATION alarm
6	OUT OF RANGE alarm
7	no alarm action required

where Alarm Deadband is enumerated as:

Value	Meaning
0	0.1% alarm deadband
1	0.5% alarm deadband
2	1.0% alarm deadband
3	5.0% alarm deadband

where Delay Time IN and Delay Time OUT is enumerated as:

Value	Meaning
0	0.0 seconds
1	0.4 seconds
2	1.0 seconds
3	2.0 seconds
4	5.0 seconds
5	15.0 seconds
6	30.0 seconds
7	60.0 seconds

Mapping between the server and the Moore 352 for bit 0 of the Loop 1 Status (L1ST) address

For ease of control and observation of the Loop 1 Status on the Moore Mycro 352 controller, some values on the server are mapped to different values on the Moore 352 controller. If either a status point or the MD parameter of a point is built with the address L1ST Bit 0 address (channel 9 parameter 1) on a Moore 352 controller, the following mapping is done:

Table 2: Mapping performed between the server and Moore 352

Server Mode	Server Value	Moore 352 Value
MAN-LSP	0	MANUAL/INTERNAL
AUTO-LSP	1	AUTO/INTERNAL
AUTO-RSP	2	AUTO/EXTERNAL
MAN-RSP	6	MANUAL/EXTERNAL

For example, if the MD on a point is set to MAN-RSP, the status of the Loop 1 mode changes to MANUAL and EXTERNAL. The reverse mapping also applies.

Attention

Mapping is not performed for Loop2. Mapping is only performed for the Moore Mycro 352 controller type. Other bits of the Status L1ST address and all other addresses on the device are read from and written to without any value mapping.

Related topics

“Configuring the Moore Mycro controller” on page 9
“Troubleshooting Moore Mycro issues” on page 33

Troubleshooting Moore Mycro issues

This section describes troubleshooting tasks for Moore Mycro that you can perform either on the server or from any Station.

Related topics

“Testing Moore Mycro communications with the server” on page 34
“Addresses supported by the Moore Mycro interface” on page 20

Testing Moore Mycro communications with the server

You use the Moore Mycro test utility, **mmutst**, to test communications between the server and the Moore Mycro controller after you have downloaded channel and controller definitions to the server database.

You can also use **mmutst** to change the values of registers that in turn set configuration items on the Moore Mycro controller.

Prerequisites

- Set up the controller.
- Connect all cables.
- Define the controller and channel in Quick Builder.
- Download the Quick Builder definitions to the server, without errors.
- Ensure the channel is out of service.

To run the mmutst utility

1. Open a Command Prompt window.
2. Type **mmutst** and then press Enter.
3. Follow the directions as prompted.
   You can read and write data to all registers that can be addressed by the server.

Related topics

“Planning considerations for installing and configuring Moore Mycro controllers” on page 5
“Configuring the Moore Mycro controller” on page 9

Troubleshooting Moore Mycro point configuration errors

Errors while downloading to host

If points are configured with illegal configuration details, this might cause problems when they are downloaded to the server. If this occurs, read the output file created by Quick Builder and correct the errors.

Note that certain combinations of server point types and Moore Mycro 352 addresses are illegal. All Status Words on the device (addresses looking at certain bits) must be defined using the STA tag type or referenced from the MD parameter of a point. See the topic titled "Addresses supported by the Moore Mycro interface" for those addresses that are Status Words. Also, analog points and accumulator points cannot specify a bit field.

Unexpected point values

If a point does not have the expected value, the point might be configured incorrectly. Ensure that the point source address has the correct data type. If not, either check the point source address in the Quick Builder line or the device address definition file *mmu_352_def*.

If the point is a STAND format, check the RANGE specified. If the value conflicts with a value for a loop value on the faceplate of the Moore, check that the RANGE matches the Process Lo, Hi, and Decimal Point, which is configured in FB15.

For some values, the point value reported by server will be slightly different from the value shown on the faceplate of the Moore Mycro due to rounding errors on the device.

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