

I/O Assembly quick reference

Technology Update

UNIT

Quickly and easily change the format and content of MFC communications on DeviceNet™ MFCs



Celerity's Unit DeviceNet MFC

introduction

Scanners typically form a “polled connection” with an MFC in order to command a setpoint and read back status. By configuring the two parts of the connection, called the producer and consumer, the meaning and format of the exchanged data is defined. This document explains the details as they pertain to Unit MFCs and the ODVA specification for MFCs in general.

terminology

- **ASSEMBLY**

A structure-like collection of data taken from the various logical objects present within the MFC

- **INSTANCE**

One of the twenty predefined assemblies from the ODVA spec, section 3-25.5 Vol. II, Rel 2.0, Errata 2

- **PRODUCER INSTANCE**

Sixteen of the twenty instances refer to the way the MFC can send data back to the scanner; this is also referred to as the “input instance” from the point of view of the scanner.

- **CONSUMER INSTANCE**

Four of the twenty instances refer to the way the MFC can receive data from the scanner; this is also referred to as the “output instance” from the point of view of the scanner card.

- **FLOATING POINT (FP-PREFIX)**

Four byte IEEE 754 format single precision float

selection of the assemblies

Choosing the two assemblies for the MFC is quite simple.

1. Construct the proper composite code from the following section by adding the two “code” values together, one from each producer and consumer instance tables.
2. Send an explicit message to the device, specifically: class 0x6E, service 0x10, instance 0x01 and attribute 0x11 followed by the hex value of the composite code
3. Power-cycle the MFC

Example: You want to send an integer setpoint to the MFC and read back an integer status and flow.

You must then select instances #7 and #2. The composite code to send is $0xC0 + 0x34 = 0xF4$.

consumer instances

This is poll data sent from the scanner to the MFC.

Instance	Code	Description	Size in bytes
#7	0xC0	Setpoint	2
#8	0x80	Override, setpoint	3
#19	0x00	FP-setpoint	4
#20	0x40	Override, FP-setpoint	5

producer instances

This is poll data sent from the MFC back to the scanner.

Instance	Code	Description	Size in bytes
#1	0x33	Flow	2
#2	0x34	Status, flow	3
#3	0x35	Status, flow, valve	5
#4	0x36	Status, flow, setpoint	5
#5	0x37	Status flow, setpoint, valve	7
#6	0x38	Status, flow, setpoint, override, valve	8
#9	0x39	Status	1
#10	0x3A	Exception detail alarm	8
#11	0x3B	Exception detail warning	8
#12	0x3C	Exception detail alarm and exception detail warning	15
#13	0x00	FP-flow	4
#14	0x01	Status, FP-flow	5
#15	0x02	Status, FP-flow, FP-valve	9
#16	0x03	Status, FP-flow, FP-setpoint	9
#17	0x04	Status, FP-flow, FP-setpoint, FP-valve	13
#18	0x05	Status, FP-flow, FP-setpoint, override, FP-valve	14

Notes

1. Unless prefixed with an “FP-“ flow, setpoint and valve are two byte integers.
2. Status and override are single byte integers.
3. The exception details are best looked up in the ODVA specification.
4. Data is sent little-endian, that is, bytes at lower addresses have lower significance.
For example: Instance #8 is override, setpoint (low byte), setpoint (high byte).

conclusion

Celerity has a well staffed Applications Department to answer any questions you may have regarding the conversion factors. The Applications Engineering Department can be reached at (714) 921-2640.



CELERITY GROUP, INC.

22600 SAVI RANCH PARKWAY
YORBA LINDA, CALIFORNIA 92887
TELEPHONE 714.921.2640
FACSIMILE 714.921.0804
WWW.CELERITY.NET

UNIT

For technical assistance, contact Celerity Applications Engineering at 714.921.2640.



Celerity and Unit are trademarks of Celerity Group, Inc. All other product or service names mentioned in this document may be trademarks of the companies with which they are associated. System descriptions are typical and subject to change without notice.

©2002 Celerity Group, Inc.

TKS-002-0032 REVA

4/02