



# DTAM Micro DeviceNet Operator Interface Series B (Catalog No. 2707-M232P3D)

## Series B Release Contents

This Document Update provides supplemental information for Series B of the DTAM Micro DeviceNet Operator Interface Module. Please note that the Series B release has new agency certifications as listed below.

## Agency Certifications

The Series B DTAM Micro DeviceNet Operator Interface Module has the following agency ratings:

- UL and CSA Class I Division 2 Hazardous Location (Groups A, B, C and D or non-hazardous locations)
- CE Certification

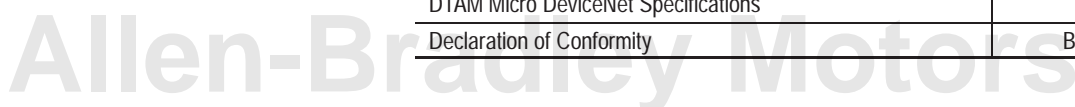
## Important!

Verify that the DTAM programming software for the Series B DTAM Micro DeviceNet is **2707-NP Series J or greater**.

## Contents of this Document

This document contains the following topics:

For information on this topic:	See page:
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## Overview

The DTAM Micro family of products provides a low cost, general purpose operator interface to Allen-Bradley PLC<sup>®</sup> or SLC<sup>™</sup> controllers. The DTAM Micro<sup>™</sup> DeviceNet supports connection to the DeviceNet<sup>™</sup> network.

This Document Update provides information you will need to install and operate the DTAM Micro DeviceNet. This product is:

Catalog Number	Description
2707-M232P3D	LCD, 40K user memory, low voltage power supply

## Product Information

This Document Update covers features specific to DTAM Micro DeviceNet. Refer to the following literature for further DTAM Micro product information and DeviceNet network information.

Publication Number	Name
2707-2.3	DTAM Micro Products Data Sheet
2707-803	DTAM Micro Operator Interface Module User Manual
2707-801	DTAM Programming Software User Manual
2707-801.10	DTAM Programming Software Document Update
DN-6.7.1	DeviceNet Cable Systems Planning and Installation Manual

## Intended Audience

This document assumes that the user is familiar with installing equipment for DeviceNet network applications, and has a working knowledge of the DeviceNet network.



**ATTENTION:** Verify that power is disconnected from the power source before wiring. Failure to disconnect power may result in electrical shock.

**ATTENTION:** Make sure that the supply voltage matches the voltage label on the back of the DTAM Micro DeviceNet. An incorrect voltage may damage the unit.

**ATTENTION:** Do not overtighten the power connector screw terminals. Overtightening the terminals may damage the DTAM Micro DeviceNet.

## Feature Summary

The DTAM Micro DeviceNet supports all the features of the comparable DTAM Micro products. These features are given in this table:

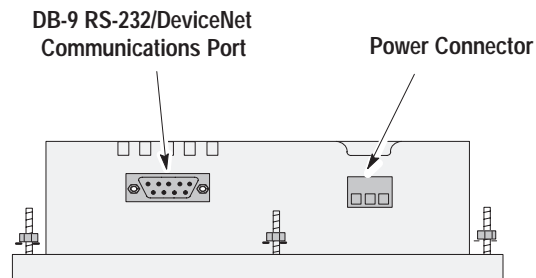
Catalog Number	Display	Comm Port Type	Memory
2707-M232P3D	LCD	RS-232/ DeviceNet	40K

### Further Comments:

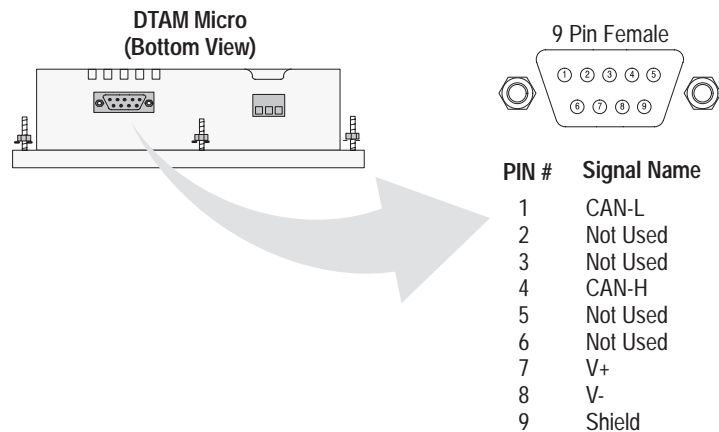
- The RS-232/DeviceNet port is used only for transferring applications or upgrading firmware when used in RS-232.
- 40K of memory supports up to 244 user screens.

## Installation and Wiring

The connectors are located on the bottom of the DTAM Micro DeviceNet, as illustrated here.



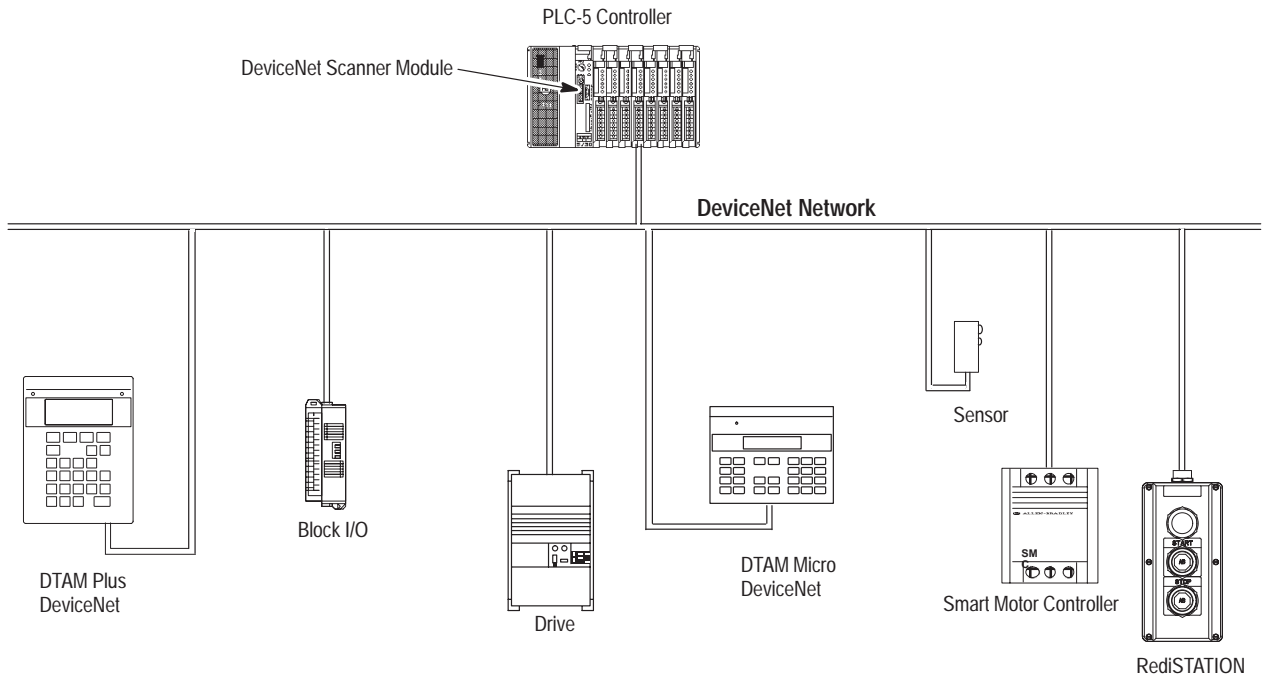
The communications port connects to the DeviceNet network using the Allen-Bradley 2707-NC20 cable. The DB-9 DeviceNet pinout is:



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A DeviceNet network supports multiple DTAM Micro DeviceNet products, and allows them to communicate with other network devices. A DeviceNet network can support up to 64 devices.

The illustration below shows a possible DeviceNet configuration. A DTAM Micro DeviceNet and other devices are operating as slaves to a PLC-5 controller with a 1771-SDN DeviceNet Scanner Module.



**Note:** DeviceNet cables and components are available from Allen-Bradley as separate catalog numbers. You must select, install and implement the DeviceNet network and supported devices according to the DeviceNet guidelines.

## Configuration and Operation

The DTAM Micro DeviceNet operates as a Group 2 Server on the DeviceNet network. It supports the Unconnected Message Manager (UCMM). The DTAM Micro DeviceNet implements the predefined master/slave connection set, operating as a slave device. It does not initiate communications except for a Duplicate Node Address check on power-up.

The DTAM Micro DeviceNet supports the polled I/O method of exchanging data with a master, in the following sequence:

1. The designated master writes an output image to the DTAM Micro DeviceNet using the Poll Command message.
2. The DTAM Micro DeviceNet responds to the poll command by returning an input image back to the master in a Poll Response message.  
**Note:** The size of the input and output images (also referred to as files) are individually configurable from 0 words to 121 words each, to optimize DeviceNet network loading.
3. The DTAM Micro DeviceNet application program interacts with data contained in the input and output files.
4. Data Display screens are used to view input and output data.
5. Data Entry screens are used to modify input data.

### Configuring the DeviceNet network

In order for devices to communicate on the DeviceNet network, the following network settings must be configured:

- node address
- baud rate
- bus-off interrupt (BOI) mode
- input file size
- output file size

Use the DTAM Micro programming software (**2707-NP, Series J or greater**) to configure the settings. Download the settings to the DTAM Micro DeviceNet unit with the application.

Alternatively, view and modify individual settings from the front panel keypad using the Mode key menu.

**Note:** The DTAM Micro DeviceNet contains no parameters that are configurable over the DeviceNet network.

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## Power supply and network connections

The DTAM Micro DeviceNet has two potential sources of power, but only one may be used at a time.

- When the unit is connected to a DeviceNet network it is powered by the network. The unit requires a chassis ground connection at the power terminal block, but no power connection.
- When the unit is connected to a computer for upload/download, it must be powered through the power terminal block.



**ATTENTION:** Never apply power at the DB-9 connector and the power terminal block at the same time.

---

A master connection is required before an application program is started. The DTAM Micro DeviceNet unit monitors for this master connection.

When a network or master is not available, an application may be exercised by using the DTAM Micro DeviceNet simulation mode. The simulation mode may be accessed using the Mode key menu.

## Information Screens

The screens discussed below include only those specific to the DTAM Micro DeviceNet. The other screens that appear in the DTAM Micro DeviceNet are described in the DTAM Micro Operator Interface Module.

### Startup procedures specific to DTAM Micro DeviceNet

The start up screen sequence that is displayed during the power-up or reset procedure is modified in the DTAM Micro DeviceNet to include the unit's DeviceNet network Electronic Serial Number (ESN). This is a unique 32-bit number assigned to each hardware unit. The Electronic Serial Number is displayed in hexadecimal format, as shown below.

ESN: 00000001 Diagnostics Complete
---------------------------------------

After the DTAM Micro DeviceNet completes the power-up or reset sequence, it displays the DeviceNet connection process:

Confirming Node Address	Performing DeviceNet duplicate MAC ID test.
Waiting for Master Connection	Waiting for Master to open a DeviceNet explicit connection.
Waiting for I/O Connection	Waiting for Master to allocate a DeviceNet I/O connection.

When the DTAM Micro DeviceNet has been successfully connected to a DeviceNet master it displays its main menu screen. The operator can now begin to interact with the application. See the DTAM Micro Operator Interface Module manual for further details.

### Errors specific to DTAM Micro DeviceNet

While a DTAM Micro DeviceNet application is running, the unit continually monitors the network status. Certain DTAM Micro DeviceNet screens indicate various DeviceNet-specific errors. The following screens indicate the types of errors that may occur.

If another DeviceNet node is using the address assigned to the DTAM Micro DeviceNet, the DUP MAC ID test fails.

DUP MAC ID Fault "Y" Key for Info	Press Y to get information on the other DeviceNet device with the same address.
MACID,VENDOR,ESN 00 0000 00000000	The ESN of the other device and its Vendor ID are displayed.

If a DTAM Micro DeviceNet receives a significant number of communication errors, its network interface goes "bus off". The Bus-Off Interrupt (BOI) setting determines if the unit automatically tries to reset the network interface, or if it holds the Bus-Off error state.

COMM Flt: BUS OFF "Y" Key to Reset
---------------------------------------

## Functions specific to DTAM Micro DeviceNet

The DTAM Micro DeviceNet contains some new options in the Mode Menu. These new functions allow the operator to:

- view and modify the DeviceNet network interface configuration
- check on the network status.

When the operator presses the “MODE” key on the front panel keyboard, this screen appears:

1 Reset	3 Special
2 FRN/ESN	4 Other

The FRN/ESN status option (“2”) has been added to the DTAM Micro DeviceNet to provide detailed system information about the DTAM Micro unit and its DeviceNet interface.

FRN01.00 ESN013F0A02
Jan 22 1996 08:25

- First line: the current DTAM Micro DeviceNet firmware revision, and the DeviceNet Electronic Serial Number in hexadecimal format.
- Second line: the date and time that the current firmware revision was created.

Other DeviceNet-specific functions have been added to the Special Menu (“3”) and the Other Menu (“4”). See below for these submenus.

### Special Menu

1 P-A/D	3 DNStatus
2 DN-PORT	4 Exit

The P-A/D option (“1”) allows the operator to access the input and output files that are transferred across the DeviceNet network. This option is the same as in other DTAM Micro products, except the DeviceNet unit supports only the input and output file types.



### DeviceNet Port sub-menu

The DN-Port option (“2”) allows the operator to modify the network interface settings at the DTAM Micro DeviceNet port.

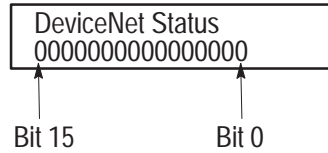
1 Baud	3 BOI	5 (O) Size
2 Adr	4 (I) Size	6 Exit

- Select Item 1 to access the DeviceNet baud rate options. Use the NEXT key to select one of 125K, 250K, and 500K bits per second. The factory-set baud rate is 125K bps.
- Select Item 2 to access the DeviceNet node address. Use the numerical keys to enter a new node address, and press ENTER to accept the new address. The factory-set node address is 63.
- Select Item 3 to change the DeviceNet bus-off interrupt setting. Use the NEXT key to select between RESET and HOLD IN RESET options. The factory-set BOI is HOLD IN RESET.
  - The RESET option allows the DTAM Micro DeviceNet to automatically reset the DeviceNet interface when a bus-off condition occurs.
  - The HOLD IN RESET option keeps the unit in a bus-off state until the operator intervenes or the unit is manually reset.
- Select Item 4 or Item 5 to change the size of the input or output file. Each file size can be from 0 words to 121 words long. The factory-set file sizes are 1 word each. If either of the file sizes are changed other parts of the system may need editing.
  - The DTAM Micro DeviceNet application program may have to be edited. For instance, a data display screen may address a file element that is eliminated when the file size is reduced.
  - The DeviceNet master may need to be updated, since it is configured to send and receive specific lengths of polled I/O messages. When the file size is changed, so are the message lengths.

**Note:** The DeviceNet interface is disabled while any DeviceNet attribute is being accessed from the DeviceNet Port sub-menu. The interface is reset upon exiting the sub-menu.

### DeviceNet Status screen

The DNStatus word (“3”) option allows the operator to check the DeviceNet status of the unit.

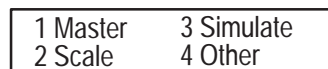


The Status Word’s 16 bits are defined in this table:

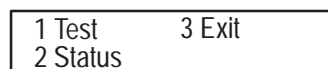
Bit	Name	Definition
0 (rightmost bit)	owned	0=not owned by a DeviceNet master 1=owned by a DeviceNet master (connection set is allocated)
1	reserved	always 0
2	configured	0=out-of-box configuration 1=configuration modified by user
3	reserved	always 0
4 to 7	vendor specific	not used, always 0
8	minor recoverable fault	0=no fault 1=minor recoverable device fault
9	minor unrecoverable fault	0=no fault 1=minor unrecoverable device fault
10	major recoverable fault	0=no fault 1=major recoverable device fault
11	major unrecoverable fault	0=no fault 1=major unrecoverable device fault
12 to 15 (leftmost bit)	reserved	always 0

### Other Menu

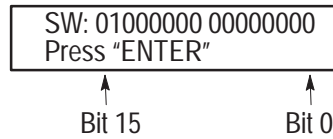
When the operator presses the “4” key (Other) from the Mode menu, this screen appears:



When the operator presses the “4” key (Other), this screen appears:



When the operator presses the “2” key (Status), this screen appears:



The Status option allows the operator to check the system status of the DTAM Micro DeviceNet unit. The Status Word's 16 bits are defined in this table:

Bit	Name	Definition
2, 1, 0	cause of last reset	000=power loss
		001=watchdog reset
		010=user invoked reset, from MODE Menu Reset ("1") option
		011=fault recovery
		100=protocol requested reset
3	watchdog valence test failed	
4	checksum test failed	
5	RAM test failed	
6	power-on hardware test failed	
7	watchdog reset occurred	
8	stack overflow	
9	tasking error	
10	DeviceNet message lost	
11	DeviceNet unexpected interrupt	
12	DeviceNet bus warning	
13	DeviceNet bus off	
14	DeviceNet bus power off	
15	other DeviceNet errors (bit stuff, form, ack, bit0, bit1, CRC)	

## DeviceNet Object Classes

The DTAM Micro DeviceNet supports the following DeviceNet object classes:

Class Code:	Number of Instances:	Comments:
01 hex	1	Identity Object
02 hex	1	Message Router Object
03 hex	1	DeviceNet Object
04 hex	2	Assembly Objects
05 hex	4	DeviceNet Connection Objects
64 hex	1	DTAM Micro OI Application Object

## Identity Object

**Class Code: 01 hex**

**Number of Instances = 1**

**Class Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Revision	UINT	1

**Instance Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Vendor ID	UINT	1
2	Get	Device Type	UINT	0=generic device
3	Get	Product Code	UINT	3=DTAM Micro
4	Get	Revision: Major Revision Minor Revision	Struct of USINT USINT	1 0
5	Get	Status	WORD	device status*
6	Get	Electronic Serial Number	UDINT	unique 32-bit number
7	Get	Product Name: String Length ASCII String	Struct of USINT String[ ]	8, "DTAM Micro"

## Common Services:

Service Code (Hex)	Implemented For:		Service Name
	Class	Instance	
0E	Yes	Yes	Get_Attribute_Single
05	No	Yes	Reset

\*device status:

Bit(s)	Name	Definition
0	owned	0=not owned 1=owned (Master/Slave Connection set has been allocated)
1	reserved	set to 0
2	Configured	0=Out of Box CFG 1=Not Out of Box CFG
3	reserved	set to 0
4-7	vendor specific	0=not used
8	Minor Recoverable Fault	0=no fault 1=minor recoverable device fault
9	Minor Unrecoverable Fault	0=no fault 1=minor unrecoverable device fault
10	Major Recoverable Fault	0=no fault 1=major recoverable device fault
11	Major Unrecoverable Fault	0=no fault 1=major unrecoverable device fault
12-13	reserved	set to 0
14-15	reserved	set to 0

## Out-Of-Box Configuration

The parameters and the defaults listed in the following table define the “Out-of-Box” configuration for the DTAM Micro DeviceNet product. These are set at the factory and may also be set through the DeviceNet Identity object explicit message reset function.

Function	Parameter	Default Value
C-Port	Baud	9600
	Data Bits	8
	Parity	None
Special	DTAM Micro Node	63
Other	Simulate	Off
	Master Code	00000000
	Scale	On
DeviceNet	BOI action	0=hold in reset
	Input file size	1 word
	Output file size	1 word
	Node address	63 dec
	Baud rate	125K Baud

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## Major/Minor Fault Assignments

Minor Recoverable Faults	Detection (Power up or Runtime)
DeviceNet Bus Warning	Runtime
DeviceNet CRC Error	Runtime
DeviceNet Bit 0 Error	Runtime
DeviceNet Bit 1 Error	Runtime
DeviceNet Stuff Error	Runtime
DeviceNet Format Error	Runtime
DeviceNet Ack Error	Runtime

Minor Unrecoverable Faults	Detection (Power up or Runtime)
none	n/a

Major Recoverable Faults	Detection (Power up or Runtime)
DeviceNet Bus Off	Power up or Runtime
Watchdog/Pwr transient	Power up
Stack overflow	Power up or Runtime
Checksum Fail (OS or CFG)	Power up
RAM BITE Fail	Power up
Protocol HW BITE Fail	Power up

Major Unrecoverable Faults	Detection (Power up or Runtime)
none	n/a

**Message Router Object**

Class Code: 02 hex

Number of Instances = 1

**Class Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Revision	UINT	1

**Instance Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Object_list Number of class codes supports Classes	Struct of UINT ARRAY of UINT	5 1, 2, 3, 4, 5 hex

**Common Services:**

Service Code (Hex)	Implemented For:		Service Name
	Class	Instance	
0E	Yes	Yes	Get_Attribute_Single

## DeviceNet Object

Class Code: 03 hex

Number of Instances = 1

### Class Attributes:

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Revision	UINT	1

### Instance Attributes:

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	① Node Address	USINT	0-63
2	Get	① Baud Rate	USINT	0=125K 1=250K 2=500K
3	Get/Set	① BOI	BOOL	default=0
4	Get/Set	Bus-Off Counter	USINT	0-255*
5	Get	Allocation Info	Struct of: BYTE USINT	allocation byte** 0-63=master ID 255=unallocated

① This is a programmable configuration item.

### Common Services:

Service Code (Hex)	Implemented For:		Service Name
	Class	Instance	
0E	Yes	Yes	Get_Attribute_Single
10	No	Yes	Set_Attribute_Single
4B	No	Yes	Allocate Master/Slave Connection Set
4C	No	Yes	Release Master/Slave Connection Set

\* Set\_Attribute\_Single service for Instance Attribute 4 will always set BOI to 0 regardless of data value. The BOI counter cannot be preset to any value other than 0.

\*\* Allocation byte:

Bit(s)	Name	Default Data Value
7-3	reserved	Always 0
2	bit_strobe	Not supported, always 0
1	Polled	0=not requested 1=requesting polled allocation
0	Explicit	0=not requested 1=requesting explicit allocation



**Assembly Objects**

Class Code: 04 hex

Number of Instances = 2

**Class Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Revision	UINT	1

**Instance 1 Attributes (Input Assembly):**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
3	Get	Data	Array of BYTE	input_data

**Instance 2 Attributes (Output Assembly):**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
3	Get	Data	Array of BYTE	output_data

**Common Services:**

Service Code (Hex)	Implemented For:		Service Name
	Class	Instance	
0E	Yes	Yes	Get_Attribute_Single

## Connection Objects

The DeviceNet connections supported for the Master/Slave implementation are as follows:

Connection Instance ID #	Description
1	Predefined Master/Slave Explicit Connection
2	Predefined Master/Slave Poll I/O Connection
3	Primary UCMM Explicit Connection
4	Secondary UCMM Explicit Connection

The Explicit Connections are responsible for receiving any explicit requests and returning the associated responses.

The Poll Connection is responsible for receiving the Master's Poll Command and returning the associated Poll Response.

**Class Code: 05 hex**

**Number of Instances = 4**

**Class Attributes:**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	Revision	UINT	1

**Instance 1, 3, and 4 Attributes (Explicit Message Connections):**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	State	USINT	03=Established
2	Get	Instance Type	USINT	00=Explicit
3	Get	Transport Trigger	USINT	83 hex: Server/Transport class 3
4	Get	Produced Connection ID (Slave Exp Rsp)	UINT	10xxxxxx011binary (xxxxxx=node address)
5	Get	Consumed Connection ID (Master Exp Rq)	UINT	10xxxxxx100binary (xxxxxx=node address)
6	Get	Initial Comm Characteristics	USINT	21 hex
7	Get	Produced Connection Size	UINT	7
8	Get	Consumed Connection Size	UINT	7
9	Get/Set	Expect Packet Rate	UINT	09C4 hex
12	Get	Watchdog Timeout Action	USINT	1=auto delete
13	Get	Produced Connection Path Length	UINT	0
14	Get	Produced Connection Path	Array of USINT	empty
15	Get	Consumed Connection Path Length	UINT	0
16	Get	Consumed Connection Path	Array of USINT	empty

**Instance 2 Attributes (Poll I/O Connection):**

Attribute ID	Access Rule	Name	DeviceNet Data Type	Default Data Value
1	Get	State	USINT	01=Configuring
2	Get	Instance Type	USINT	01=I/O
3	Get	Transport Trigger	USINT	82 hex: Server/Transport class 2
4	Get	Produced Connection ID (Slave I/O Poll)	UINT	01111xxxxxbinary (xxxxxx=node address)
5	Get	Consumed Connection ID (Master I/O Poll)	UINT	10xxxxxx101binary (xxxxxx=node address)
6	Get	Initial Comm Characteristics	USINT	01 hex
7	Get	Produced Connection Size	UINT	input_file_size
8	Get	Consumed Connection Size	UINT	output_file_size
9	Get/Set	Expect Packet Rate	UINT	0
12	Get	Watchdog Timeout Action	USINT	0=time out
13	Get	Produced Connection Path Length	UINT	4
14	Get	Produced Connection Path	Array of USINT	Class 4 Instance 1 20 04 24 01
15	Get	Consumed Connection Path Length	UINT	4
16	Get	Consumed Connection Path	Array of USINT	Class 4 Instance 1 20 04 24 02

**Common Services:**

Service Code (Hex)	Implemented For:		Service Name
	Class	Instance	
05	Yes	Yes	Reset*
0E	Yes	Yes	Get_Attribute_Single
10	No	Yes	Set_Attribute_Single

\* For class, resets all connections to non-existent.

For instances, resets connection timer, and if applicable changes state from timed-out to established.

## Application Object

The application object is not accessible via the DeviceNet network.

**Class Code: 64 hex**

**Number of Instances = 1**

## EDS File Printout

```

$ DTAM Micro DeviceNet Electronic Data Sheet
$ Version 1.0
$ 10/03/96

$ File Description Section
[File]
  DescText    = "DTAM Micro DeviceNet";
  CreateDate  = 10-03-96;
  CreateTime  = 11:20:00;
  Revision    = 1.0;

$ Device Description Section
[Device]
  VendCode    = 1;
  VendName    = "Allen-Bradley";
  ProdType    = 0;
  ProdTypeStr = "Generic";
  ProdCode    = 4;
  MajRev      = 1;
  MinRev      = 0;
  ProdName    = "DTAM Micro - Operator Interface
                Module";
  Catalog     = "2707-M232P3D";

$ I/O Characteristics Section
[IO_Info]
  Default = 0x0001; $ Poll Only

  PollInfo =
    0x0001,          $ Poll Only
    1,              $ Default Input = Input1
    1;              $ Default Output = Output1

  Input1 =
    242,            $ Up to 242 bytes
    0,              $ All bits significant
    0x0001,         $ Poll Only connection
    "Input File",   $ Name
    6,"20 04 24 01 30 03", $ Assembly Object
                    Instance 1
    "";             $ Help string

```

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```

Output1 =
    242,                $ Up to 242 bytes
    0,                  $ All bits significant
    0x0001,             $ Poll Only connection
    "Output File",     $ Name
    6, "20 04 24 02 30 03", $ Assembly Object
                        Instance 2
    ";                  $ Help string

$ Parameter Class Section
[ParamClass]
    MaxInst      = 2;
    Descriptor   = 03;
    CfgAssembly = 0;

[Params]
Param1 =
    0,                $ Parameter value slot
    6, "20 05 24 02 30 07", $ Link path size and path
    0x0014,           $ Descriptor (RO)
    2, 2,             $ UINT, 2 bytes;
    "Input Size",    $ Parameter name
    "Wrds",          $ Units string
    "",              $ Help string
    2, 242, 2        $ Min, max, default
    1, 2, 1, 0,     $ Mult, div, base,
                        offset scaling
    0, 0, 0, 0, 0;  $ Scaling links and
                        precision

Param2 =
    0,                $ Parameter value slot
    6, "20 05 24 02 30 08", $ Link path size and path
    0x0014,           $ Descriptor (RO)
    2, 2,             $ UINT, 2 bytes
    "Output Size",   $ Parameter name
    "Wrds",          $ Units string
    "",              $ Help string
    2, 242, 2        $ Min, max, default
    1, 2, 1, 0,     $ Mult, div, base,
                        offset scaling
    0, 0, 0, 0, 0;  $ Scaling links and
                        precision

[EnumPar]

[Groups]

$ End of DTAM Micro DeviceNet EDS File

```

## DTAM Micro DeviceNet Specifications

### LCD Display

Character Size (H x W)	0.19 x 0.12 in (4.75 x 2.95 mm)
Character Format	5 mm x 8 mm dot matrix
Column and Character	2 lines x 20 characters
Backlight	Yellow-green LED, fixed intensity
Contrast	Fixed
Display Viewing Area (H x W)	1.0 x 3.0 in (15 mm x 76 mm)
Viewing Angle	Horizontal $\pm 30^\circ$ , Vertical $-20^\circ$ to $+30^\circ$

### Keypad

Keypad Type	Tactile embossed, domed keys, sealed membrane
Operation Force	16 oz (453 grams)
Operational Life	1 million operations

### Electrical

Communications Port	RS-232C or DeviceNet
Communication Distance	
RS-232	50 ft (15 meters) maximum
Input Voltage Range	11-25V DC
Input Current	215mA maximum
Fuse	300mA

### DeviceNet Communications

Baud Rate	125, 250 or 500K bps
Trunk Distance	500 meters @ 125K bps 200 meters @ 250K bps 100 meters @ 500K bps
Nodes	64 maximum
Isolation	500 Volt
Termination Resistor (at each end of the trunk)	121 $\Omega$ 1% metal film, 1/4 watt

### Environmental

Operating Temperature	0 to 55°C (32 to 131° F)
Storage Temperature	-20 to 70° C (-4 to 158° F)
Relative Humidity	5 to 95%, noncondensing
Shock	30G operating
Vibration	50G non-operating

### Mechanical

Dimensions (Approximate)	
Height:	3.9 inch (99.1 mm)
Width:	5.4 inch (137.2 mm)
Depth:	1.8 inch (45.7 mm)
Front Panel Size	
Height:	5.4 inch (137.2 mm)
Width:	6.9 inch (175.3 mm)
Weight	1.0 lbs (0.45 kg) max
LED Indicator	RUN LED (Green)

### Certifications

NEMA Type 4, 12, 13 (indoor use only)



Class I Division 2 Hazardous Location (Groups A, B, C, and D)



UL Class I Division 2 Hazardous Location (Groups A, B, C, and D)



# Allen-Bradley Motors

**DECLARATION OF CONFORMITY**

This Declaration of Conformity is suitable to the European Standard EN 45014, "General criteria for supplier's declaration of conformity." The basis for the criteria has been found in international documentation, particularly in: ISO/IEC Guide 22, 1982, "Information on manufacturer's declaration of conformity with standards or other technical specifications."

Allen-Bradley liability under this declaration is limited to that set forth in the current Allen-Bradley publication 6500, Terms and Conditions of Sale as well as similar publications from Allen-Bradley affiliates doing business in the European Community.

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**Applied Council Directive(s):**  
89/336/EEC Electromagnetic Compatibility Directive (EMC), and amending directives 91/263/EEC, 92/31/EEC, 93/68/EEC

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<b>We,</b> <b>Manufacturer:</b>	<b>Allen-Bradley Company, Inc.</b> 1201 South 2nd Street Milwaukee, WI 53204 U.S.A.	<b>Authorized Representative in the Community (and location of Responsible Person):</b>	<b>Allen-Bradley, subsidiary of Rockwell International GmbH</b> Düsselderger Str. 15 D-42781 Haan Germany
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declare under our sole responsibility that the product(s):

**DTAM Micro Operator Interface Products**  
2707-M232P3D  
(series A or higher)

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to which this declaration relates is in conformity with the relevant provisions of the following standard(s) or other normative document(s):

**EN 50082-2:1995 EMC Generic Immunity Standard - Industrial**  
**EN 50081-2:1993 EMC Generic Emission Standard - Industrial**

**Technical information is maintained at:**  
**Allen-Bradley Company, Inc.**  
1201 South Second Street  
Milwaukee, Wisconsin 53204 U.S.A

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We, the undersigned, hereby declare that the product(s) specified above conforms to the listed directive(s) and standard(s).

**Manufacturer**

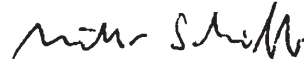
**Authorized Representative in the Community through its Responsible Person**

Signature:

Signature:



i. v.



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**Full Name:** Robert Gardiner  
**Position:** Manager, Quality Engineering  
**Date:** Oct 21 1996

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**Full Name:** Viktor Schiffer  
**Position:** Engineering Manager  
**Date:** Oct 31 1996