



# **DTAM Plus DeviceNet Operator Interface**

## **Bulletin 2707, Series B**

### **Overview**

This Release Note supports the introduction of Series B of the DTAM Plus DeviceNet family of products, which includes CE certification. The DTAM Plus DeviceNet products provide low cost, general purpose operator interface to Allen-Bradley PLC® or SLC™ controllers on the DeviceNet™ network.

This Document Update provides information you will need to install and operate the DTAM Plus DeviceNet products. These products are:

<b>Catalog Number</b>	<b>Description</b>
2707-L8P1D	LCD, 8K user memory, low voltage power supply
2707-L8P2D	LCD, 8K user memory, high voltage power supply
2707-L40P1D	LCD, 40K user memory, low voltage power supply
2707-L40P2D	LCD, 40K user memory, high voltage power supply
2707-V40P1D	VFD, 40K user memory, low voltage power supply
2707-V40P2D	VFD, 40K user memory, high voltage power supply
2707-V40P2ND	VFD, 40K user memory, high voltage power supply, NEMA4X

### **Product Information**

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

<b>Publication Number</b>	<b>Name</b>
2707-2.0	DTAM Plus Products Data Sheet
2707-800	DTAM Plus Operator Interface Module User Manual
2707-801	DTAM Programming Software User Manual
2707-801.7	DTAM Plus 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 Plus DeviceNet. An incorrect voltage may damage the unit.

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

## Feature Summary

The DTAM Plus DeviceNet product support all the features of the comparable DTAM Plus products. These features are given in this table:

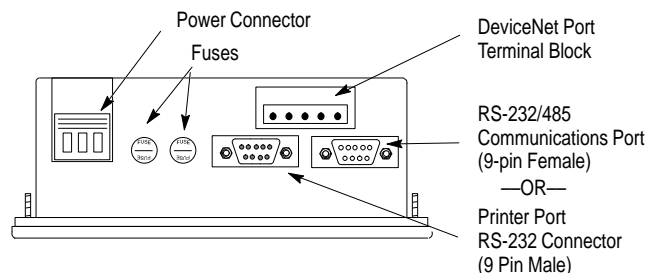
Catalog Number	Display	Comm Port Type			Clock	Memory	ASCII Input
		RS-232/485	Printer	DeviceNet			
2707-L8P1D, -L8P2D	LCD	Yes	No	Yes	No	8K	No
2707-L40P1D, -L40P2D	LCD	No	Yes	Yes	Yes	40K	Yes
2707-V40P1D, -V40P2D, -V40P2ND	VFD	No	Yes	Yes	Yes	40K	Yes

### Further Comments:

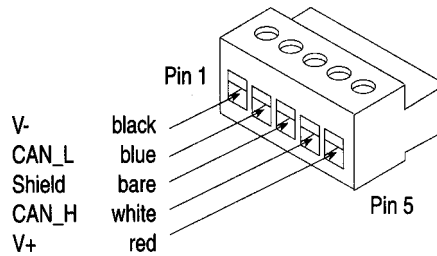
- The RS-232/485 port is used only for transferring applications or upgrading firmware. It is not used for host communication.
- The Printer port may also be used to transfer applications or upgrade firmware.
- 8K of memory supports up to 50 user screens. 40K of memory supports up to 244 user screens.

## Installation and Wiring

The connectors and fuses are located on the bottom of the DTAM Plus DeviceNet, as illustrated here.

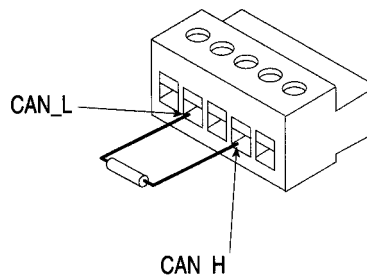


The DTAM Port connects to the DeviceNet network using the removable DeviceNet terminal block located on the bottom of the unit.



Devices on end nodes of the DeviceNet must be terminated. If the DTAM Plus is an end node, you must provide this termination.

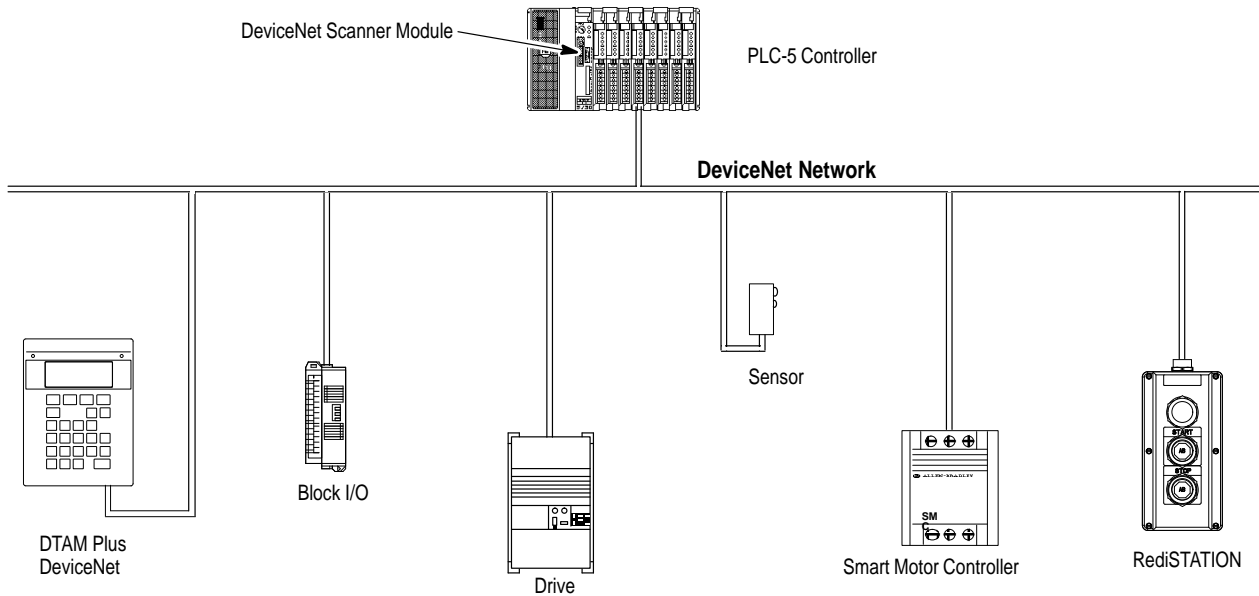
To terminate the DTAM Plus, install a 121 $\Omega$ , 1%, 1/4 W metal film resistor between the CAN\_H and CAN\_L terminal on the DeviceNet terminal block, as shown here.



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

The illustration on the next page shows a possible DeviceNet configuration. A DTAM Plus 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.



## European Union Directive Compliance

If this product is installed within the European Union or EFTA regions, the following regulations apply.

This apparatus is tested to meet Council Directive 89/336 Electromagnetic Compatibility (EMC) Standards:

- EN50081-2 Class A (Industrial) Emissions
- EN50082-2 Class A (Industrial) Immunity

According to these Standards, the factor which determines, for EMC purposes, whether an apparatus is deemed to be “Industrial” or “Residential, commercial and light industrial”, is given in Clause 1 of EN50081-2 as follows:

Apparatus covered by this standard is not intended for connection to a public mains network but is intended to be connected to a power network supplied from a high- or medium-voltage transformer dedicated for the supply of an installation feeding a manufacturing or similar plant.

The product described in this Release Note is intended for use solely in an industrial environment as defined above. When installed in Europe, any other application is in contravention of European Union Directives, and a breach of those laws.

## 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.

**Applied Council Directive(s):**  
**89/336/EEC Electromagnetic Compatibility Directive (EMC)**  
**and amending directives 91/263/EEC, 92/31/EEC, 93/68/EEC;**  
**73/23/EEC Low Voltage Directive, and amending directive 93/68/EEC**

We,

**Manufacturer:** Allen-Bradley Company, Inc.  
 1201 South 2nd Street  
 Milwaukee, WI 53204  
 U.S.A.

**Authorized Representative in the Community (and location of Responsible Person):**

Rockwell Automation,  
 Rockwell International GmbH  
 Düsselberger Str. 15  
 D-42781 Haan Germany

declare under our sole responsibility that the following

**DTAM Plus Operator Interface Products**  
**2707-L8P1D, 2707-L8P2D, 2707-L40P1D, 2707-L40P2D, 2707-V40P1D, 2707-V40P2D, 2707-V40P2ND**

(all catalog numbers are series B or higher)

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

**EN 50081-2: 1993**  
**EN 50082-2: 1995**

**EMC Generic Emission Standard - Industrial**  
**EMC Generic Immunity Standard - Industrial**

**Pertinent LVD sections of:**  
**EN 61010-1:1993**

**Measurement, Laboratory and Control Equipment, Class 1**

**Technical Information is maintained at:**

Allen-Bradley Company, Inc.  
 1201 South 2<sup>nd</sup> Street  
 Milwaukee, WI 53204  
 U.S.A.

**Year of CE Marking (low Voltage Directive): 1997**


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. 

**Full Name:** Robert Gardiner  
**Position:** Manager, Quality Engineering  
**Date:** February 24, 1997

**Full Name:** Viktor Schiffer  
**Position:** Engineering Manager  
**Date:** March 7, 1997

## Configuration and Operation

The DTAM Plus DeviceNet operates as a Group 2 Server on the DeviceNet network. It supports the Unconnected Message Manager (UCMM). The DTAM Plus 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 Plus 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 Plus DeviceNet using the Poll Command message.
2. The DTAM Plus 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 Plus 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 and output 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 Plus programming software (2707-NP, Series G or greater) to configure the settings. Download the settings to the DTAM Plus DeviceNet unit with the application.

Or view and modify individual settings from the front panel keypad using the Function Menu.

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

## Power supply and network connections

The DTAM Plus DeviceNet is powered from a local source connected to the unit's power supply terminal block.

The unit's DeviceNet interface is powered from the DeviceNet network power. It is optically isolated from the local power and ground. The DTAM Plus DeviceNet unit monitors the network power source, and generates an error message when not connected.

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

When a network or master is not available, an application may be exercised by using the DTAM Plus DeviceNet simulation mode. The simulation mode may be accessed using the Function Menu.

## Information Screens

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

### Startup procedures specific to DTAM Plus DeviceNet

The Real Time Clock information screen that is displayed during the power-up or reset sequence is modified in the DTAM Plus 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: 013F0A02 DATE Mon Jan 01 1996 TIME 12:00:00 PM Diagnostics Complete
---

After the DTAM Plus 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 Plus 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 Plus Operator Interface Module manual for further details.

### Errors specific to DTAM Plus DeviceNet

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

Network Power Lost	Waiting for network power to be reapplied.
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If another DeviceNet node is using the address assigned to the DTAM Plus 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 Plus 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 Plus DeviceNet

The DTAM Plus DeviceNet contains some new options in the Function 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 “F” key on the front panel keyboard, this screen appears:

1 C-Port	5 Special
2 P-Port	6 Term
3 Clk/Cal	7 Test
4 Reset	8 Other

DeviceNet-specific functions have been added to the Special Menu (“5”) and the Other Menu (“8”).

### Special Menu

1 P-A/D
2 DN-Port
3 DN-Status
4 Exit

The P-A/D option 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 Plus products, except the DeviceNet unit supports only the input and output file types.

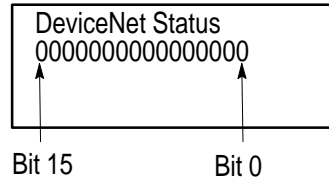
### DeviceNet Port sub-menu

The DN-Port option allows the operator to modify the network interface settings at the DTAM Plus DeviceNet port.

Select Item:	
1 BaudRate	4 (I)Size
2 NodeAdr	5 (O)Size
3 BOI	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 Plus 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 Plus 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**

This table defines the 16 status bits in the DeviceNet status word:

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

1 Simulate	5 Master C
2 BL/INT	6 Scale E
3 Contrast	7 Status
4 Prn Scrn	8 EXit

The Status option (“7”) has been added to the DTAM Plus DeviceNet to provide detailed system information about the DTAM Plus unit and its DeviceNet interface.

Rev01.00 ESN013F0A02 Jan 22 1996 08:25 SW: 00000000 00000000 Press “ENTER”
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- First line: the current DTAM Plus DeviceNet firmware revision, and the DeviceNet Electronic Serial Number in hexadecimal.
- Second line: the date and time that the current firmware revision was created.
- Third line: the system status word, which is described in the following table. Bit 0 is the rightmost bit, and bit 15 the leftmost bit.

Bit	Name	Definition
2, 1, 0	cause of last reset	000=power loss
		001=watchdog reset
		010=user invoked reset, from Function Menu “RESET” function
		011=fault recovery
		100=protocol requested reset
3	watchdog valence test failed	
4	checksum test failed	
5	RAM test failed	
6	power-on hardware text 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)	

## Specifications

### Display

Column and Character	4 lines x 20 characters
Display Technology	
LCD (2707-L versions)	Twisted-nematic type with adjustable LED (yellow) backlighting
VFD (2707-V versions)	Vacuum Fluorescent Display with viewing distance that exceeds 25 feet (7.6 meters)
Backlight Settings for LCD Version (via Keypad)	Four (0%, 33%, 66%, 100%)
Contrast Ratio	10:1
Contrast/Brightness Settings (via Keypad)	
LCD (2707-L versions)	4 settings
VFD (2707-V versions)	2 settings
Display Size (H x W)	
LCD (2707-L versions)	1.0 x 3.0 in (25.2 x 76.0 mm)
VFD (2707-V versions)	1.3 x 3.9 in (33.0 x 99.0 mm)
Character Size (H x W)	0.19 x 0.12 in (4.75 x 2.95 mm)

### Keypad

Keypad Type	Embossed, sealed membrane
Tactile Feedback	Stainless steel dome
Operation Force	12 oz. $\pm$ 3 oz. (340 grams $\pm$ 85 grams)
Operational Life	1 million cycles

### Electrical

Comm Port	RS-485 or RS-232C (configurable)
Printer Port (40K memory units)	RS-232C
Port Isolation	
Communication Port	500 V isolation
Printer Port	500 V isolation

Power Supply	Voltage	Current	Fuse
P1	15-23 VAC, 47-440 Hz 20-30 VDC	800 mA max.	1 amp
P2	85-265 VAC, 47-440 Hz 110-300 VDC	300 mA max.	1/2 amp

## 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)	121Ω 1% metal film, 1/4 watt

## Dimensions (approximate)

Overall Size	
Height	7.6 in (193.0 mm)
Width	5.5 in (139.7 mm)
Depth	2.35 in (59.7 mm)
Front Panel Size	
Height	8.5 in (215.9 mm)
Width	6.5 in (165.1 mm)
Weight	
All except 2707-V40P2ND	2.1 lbs (0.95 kg)
2707-40P2ND	4.6 lbs (2.09 kg)
LED indicators	
RUN LED	Green
Alarm LED	Red
Function LED	Yellow

## Environmental

Ambient Temperature Rating: Operating	
LCD Display	0 to 45° C (32 to 113° F)
VFD Display	0 to 60° C (32 to 140° F)
Ambient Temperature Rating: Storage	-20 to +85° C (-4 to 185° F)
Relative Humidity	5 to 95%, non-condensing

## Certifications

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

NEMA Type 4x (2707-V40P2ND only)



Class I Division 2 Groups A, B, C, D, hazardous locations



Class I Division 2 Groups A, B, C, D, hazardous locations



EN50081-2 Class A (Industrial) Emissions

EN50082-2 Class A (Industrial) Immunity

Pertinent LVD sections of EN61010-1:1993 Measurement,  
Laboratory and Control Equipment, Class 1

## DeviceNet Object Classes

The DTAM Plus 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 Plus 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 Plus
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, "DTAMplus"

**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 Definition**

The parameters and the defaults listed in the following table define the “Out-of-Box” configuration for the DTAM Plus 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
serial port	baud rate	(not used)
serial port	line cfg	(not used)
printer port	baud rate	9600 Baud
printer port	line cfg	8 data bits, Even parity
simulate	enable	0=OFF
backlight	enable	1=ON
contrast	enable	1=ON
printer port	enable	1=Enabled
printer port LF	enable	0=Disabled
printer port handshake	enable	0=Disabled
print screen "E" key	enable	1=Disabled
scale	enable	1=Enabled
DeviceNet	boi action	0=hold in reset
DeviceNet	input file size	1 word
DeviceNet	output file size	1 word
DeviceNet	node address	63 dec
DeviceNet	baud rate	125K Baud

## 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	<sup>①</sup> Node Address	USINT	0-63
2	Get	<sup>①</sup> Baud Rate	USINT	0=125K 1=250K 2=500K
3	Get/Set	<sup>①</sup> 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

<sup>①</sup> 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

## The 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	10xxxxx101binary (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 Plus DeviceNet Electronic Data Sheet
$ Version 1.0
$ 02/29/96

$ File Description Section
[File]
  DescText    = "DTAM Plus DeviceNet";
  CreateDate  = 02-29-96;
  CreateTime  = 13:35:00;
  Revision    = 1.0;

$ Device Description Section
[Device]
  VendCode    = 1;
  VendName    = "Allen-Bradley";
  ProdType    = 0;
  ProdTypeStr = "Generic";
  ProdCode    = 3;
  MajRev      = 0;          $ major/minor is 1/0, but
                           $ FRN1.0 transposes
  MinRev      = 1;
  ProdName    = "DTAM Plus";
  Catalog     = "2707-xxxPxD";

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

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

$ Input Connections

  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

```



---

\$ Output Connections

```
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
```

\$ Parameter Class Section

[ParamClass]

```
MaxInst      = 0;
Descriptor   = 0;
CfgAssembly  = 0;
```

[Params]

[EnumPar]

[Groups]

\$ End of DTAM Plus DeviceNet EDS File

## Notes

**Notes**

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