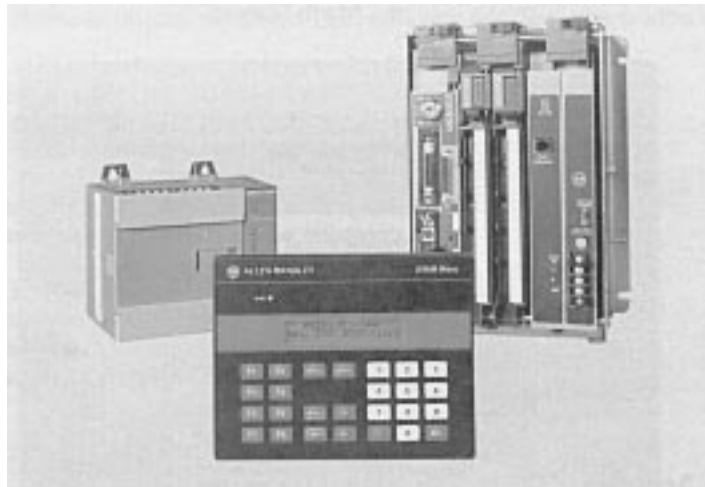




Bulletin 2707 DTAM Micro Operator Interface (Catalog No. 2707-M232P3, -M485P3)

Product Data



The DTAM Micro extends the Bulletin 2707 product line of high performance operator interfaces to the PLC-5® and SLC 500™ family of processors. The DTAM Micro provides operators with another convenient and flexible device to monitor and manipulate process data on the plant floor.

RS-232 or RS-485 Port. Select a DTAM Micro with either an RS-232 port or RS-485 port. The RS-232 port allows point-to-point connections with a PLC-5 or SLC 5/03. The RS-485 port provides DH485 point-to-point or network capability with the SLC 500 family of controllers.

Memory Capability. Supports approximately 50 screens including data display, data entry, recipe and alarm screens.

Recipe Operations. Recipe functions allow operators to quickly modify blocks of data. Each recipe screen can download data to 10 non-sequential addresses. Link multiple recipe screens to download to additional addresses.

Flexible Function Key Operations. Eight function keys provide a convenient way to trigger screen displays and control screen navigation. Function keys can also be used to set or clear a bit or data table word in the processor.

SLC and PLC Controlled Screen Changes provide additional flexibility in screen navigation using the Advisor feature.

Point-Access/Display Feature. Operators can easily monitor or modify data files in SLC or PLC-5 controllers (regardless of programmed screen) using the Point-Access/Display feature, via the front panel Mode key.

Standard File Access Options for SLC controllers include I/O, status, binary, timer, counter, control and integer files. Additional options for the PLC-5 include ASCII, BCD, Message and ASCII string files.

Offline Software Development Package (Catalog No. 2707-NP)

Similar to other DTAM Plus products, applications for the DTAM Micro are created with the Offline Software Development Package (Catalog No. 2707-NP Series C or later). During application development, you can create:

- Data Display Screens
- Data Entry Screens
- Recipe Screens
- Alarm Screens

Application screens are developed in a flow chart manner and then linked to provide a logical flow of displays. Menu prompts guide the user through the programming steps. For information on the Offline Programming Software, refer to Publication 2707-801.

The software is available on a 3¹/₂ inch (720K) disk and runs on a personal computer with a 80286 or higher processor and a minimum of 640K RAM.

Applications are downloaded to the DTAM Micro using either the RS-232 port or the RS-485 port. Programs are downloaded with the applicable operating system for proper operation with the SLC 500 processor (AB DH485) or the PLC-5 family of processors (PLC-5 DF1).

File Type Access

The DTAM Micro supports the following file types when connected to the SLC 500 or PLC-5 family of processors.

SLC 500 Data Files

File Type	Data Access
Output	Read Only
Input	Read Only
Status	Read/Write
Binary	Read/Write
Timer	Read/Write
Counter	Read/Write
Control	Read/Write
Integer	Read/Write

PLC-5 Data Files

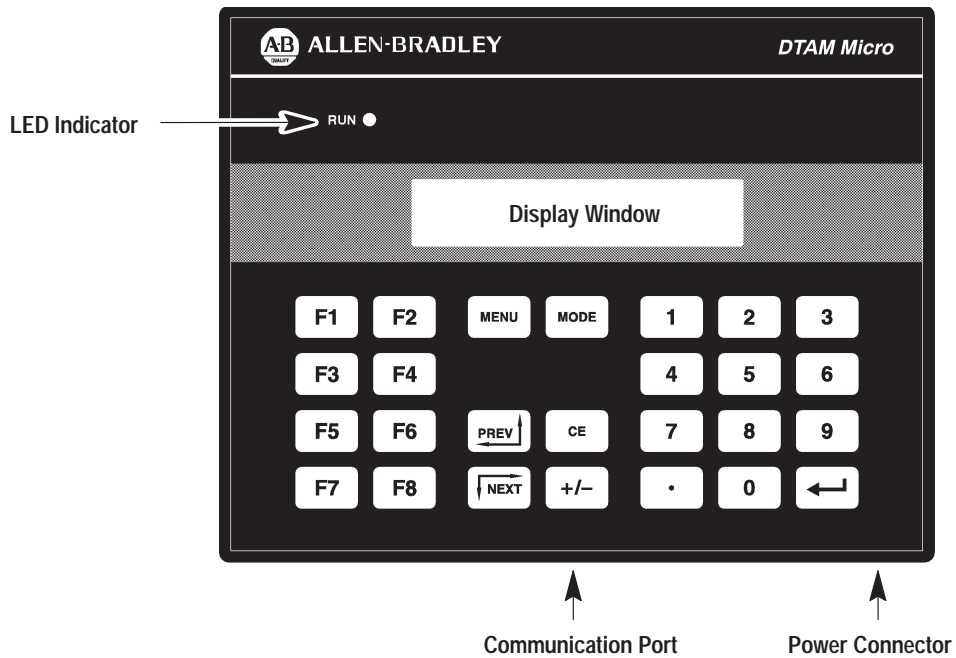
File Type	Data Access
Output	Read Only
Input	Read Only
Status	Read/Write
Binary	Read/Write
Timer	Read/Write
Counter	Read/Write
Control	Read/Write
Integer	Read/Write
ASCII	Read Only
BCD	Read/Write
Message	Read Only
ASCII String	Read Only

Terminal Features

The DTAM Micro operator interface is a panel mount device designed for flush mounting in a NEMA type or similar enclosure. A gasket is provided to meet NEMA Type 4 requirements (indoor use only).

Power and interface connections are accessed from the back side of the panel on which the DTAM Micro is mounted.

The front panel of the DTAM Micro has a sealed unit with a 2 line x 20 character display window, 1 LED indicator and 26 tactile feedback keys.



LCD Display

The 2 line by 20 character display uses high contrast LCD technology with fixed LED backlighting.

LED Indicator

The DTAM Micro has one indicator in the upper left corner of the terminal.

Indicator	Color	Function
Run	Green	Lights during DTAM Micro operation. This LED illuminates after the terminal passes the self diagnostic tests.

Memory

The DTAM Micro can store up to 240 application screens and PLC-5 DF1 or SLC driver (communications protocol) information.

Terminal Features

Communications Port

The DTAM Micro has either an RS-232 or an RS-485 port.

- Catalog No. 2707-M232P3 has an RS-232 port and communicates with PLC-5 or SLC 5/03 controllers.
- Catalog No. 2707-M485P3 has an RS-485 port and communicates with the SLC 500 family of controllers using point-to-point or DH485 network connections and point-to-point connections with PLC-5 Channel 0 Port (configured for RS-422).

Port Parameters

Both the RS-232 and RS-485 ports support the following parameters.

Port Parameters	Settings
Baud Rate	300, 1200, 2400, 4800, 9600, 19200, 38400
Data Bits	7 or 8
Parity	Odd, Even, None

Port Connections

This port	Supports these connections:	With:
RS-232	Point-to-Point	PLC-5 Channel 0 Port
	Point-to-Point	SLC 5/03 RS-232 Port
	Point-to-Point	Personal Computer RS-232 Port Transfers applications to DTAM Micro
RS-485	Point-to-Point	PLC-5 Channel 0 Port (Configured for RS-422)
	Point-to-Point	SLC 500 DH485 Port
	Multi-drop	SLC 500 controllers over DH485 network
	Point-to-Point	Personal Computer RS-232 Port Transfers applications to DTAM Micro Requires Catalog No. 2707-NC5 Upload/Download Cable
DeviceNet	Multi-drop	Other DeviceNet devices such as a PanelView Terminal, 1305 Drive, or AdpataScan Bar Code Reader.

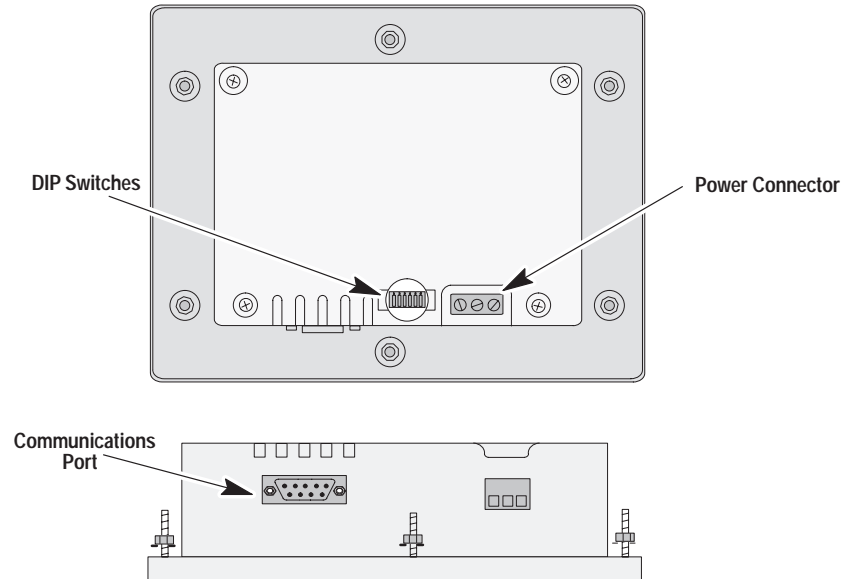
DF1 protocol is supported for both RS-485 and RS-232 communications.

DF1 Protocol Parameters	Options
Protocol	DF1 Full-Duplex
Control Line Operation	No Handshaking
Error Detect	CRC
Baud Rate	300, 1200, 2400, 4800, 9600, 19200

Parity	None or Even
Stop Bits	1

Power Connector

The power connector on the DTAM Micro is a non-removable, screw terminal block located on the back of the unit.



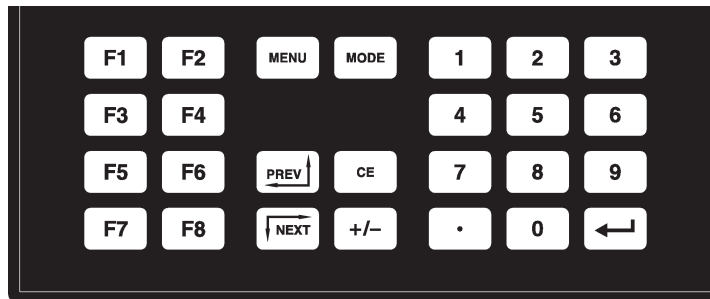
DIP Switches

The DTAM Micro uses 6 DIP switches to select various settings. The DIP switches are located under a removable cover on the back of the unit. (The cover is included in hardware bag on new units.)

DIP Switch	Setting	Function
SW-1	ON	Allows the transfer of applications between the DTAM Micro and a personal computer. Disables communications with the controller and keypad entry.
	OFF	Enables communications between the DTAM Micro and controller.
SW-2	ON	Enables the master code which allows you to access or change any security code.
	OFF	Disables the master code. You can access a security screen or special functions but cannot change security codes.
SW-3	ON	Enables the front panel Mode key.
	OFF	Disables the front panel Mode key.
SW-4, 5, 6	ON or OFF	Reserved for future use

Terminal Features

Membrane Keypad



The DTAM Micro uses a sealed membrane, tactile feedback keypad. The keys are color coded to easily identify key functions.

Key Color	Function
Blue	Movement/Operator Response
Dark Grey	Display/Format Control
Light Grey	Numeric Entry

The following table defines the function of each keypad key.

Key	Function
	Returns to the main menu of an application. If an alarm screen is triggered, the MENU key is not functional until the alarm is acknowledged with the Enter key.
	Accesses special features and configuration operating parameters. DIP switch SW-3 enables or disables the MODE key.
	Steps back through a sequence of linked screens.
	Steps forward through a sequence of linked screens.
	Clears an entire value during data entry.
	Toggles a data entry value between positive or negative.
	Enters a decimal point during data entry.
	Sends data to the controller. Data includes default values or data entered at the keyboard. Also acknowledges alarm condition.
	Enters numbers 0 to 9 during data entry or selects a numbered item shown on the display.
	Displays any application screen assigned to the key.

Function Key Operations F1 → F8

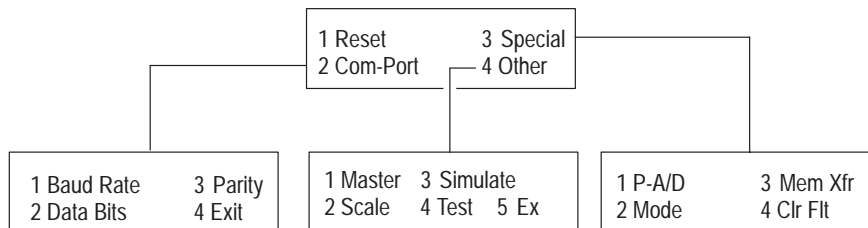
Function keys are mapped to screens allowing operators quick access to critical data display or data entry activity. For example, the F1 function key is linked to Recipe Screen 10. The operator can press F1 at any point in the application to download recipe registers on screen 10 to the processor.

You can assign a control mode to each function key linked to a screen.

Control Mode	Function
Auto Return	Returns to the screen displayed before the function key was pressed.
Continue	Continues to the next screen in the link regardless of the screen displayed before the function key was pressed.
Bit Write Mode	Allows the function key when pressed to set or clear a bit in the controller. Bit Write Mode operates with either Auto Return or Continue mode. The function keys access contiguous word data elements defined by the user. For example, assign function keys F1 to F8 to N7:20 → N7:27.

MODE Key Operations MODE

The MODE key accesses a menu of options allowing you to set features and operating parameters of the DTAM Micro.



Mode Menu	Select this option:	To perform this function:
1 Reset		Performs a system reset.
2 Com-Port	1 Baud Rate 2 Data Bits 3 Parity 4 Exit	Specifies 300, 1200, 2400, 4800, 9600, 19200, 38400 Specifies 7 or 8 data bits. Specifies even, odd or none parity. Exits Com-Port menu.
3 Special	1 P-A/D 2 Mode 3 Memory Xfr 4 Clr Flt	Displays and/or modifies data files in the processor. Places processor in RUN mode or PROGRAM mode. Transfers memory between a memory module and an SLC or PLC-5. The processor must be in PROGRAM mode. Clears all processor faults in the PLC-5 or SLC 500.
4 Other	1 Master 2 Scale 3 Simulate 4 Test 5 Exit	Modifies the master security code of the DTAM Micro. Converts controller values to engineering units. Verifies an application without controller connected. Tests memory, communications, keyboard and display. Exits Other menu.

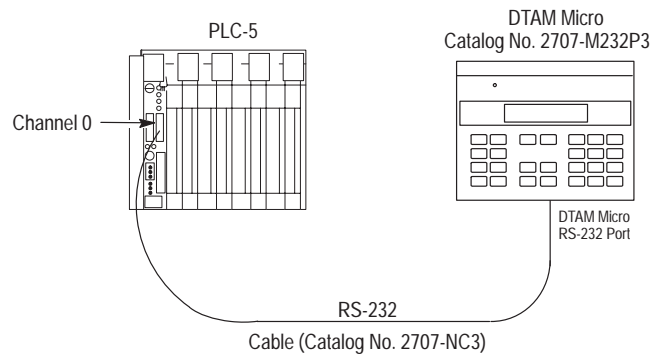
RS-232 Connections Catalog No. 2707-M232P3

The RS-232 port of the DTAM Micro (Catalog No. 2707-M232P3) allows point-to-point communications with:

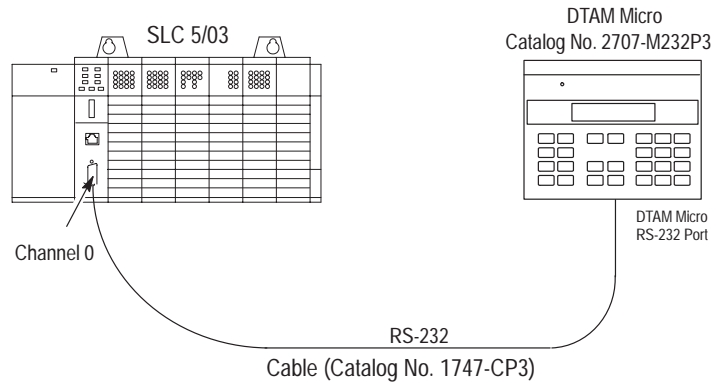
- PLC-5 Channel 0 (configured as RS-232 port)
- SLC 5/03 RS-232 port

The figure below shows typical RS-232 connections.

DTAM Micro to PLC-5 Channel 0



DTAM Micro to SLC 5/03



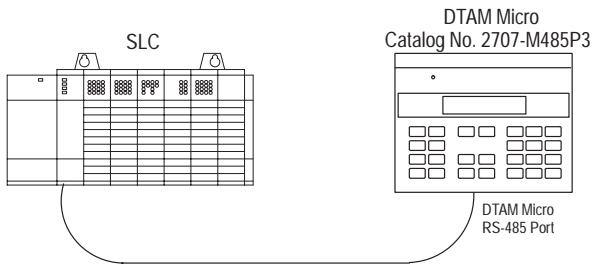
RS-485 Connections Catalog No. 2707-M485P3

The RS-485 port of the DTAM Micro (Catalog No. 2707-M485P3) allows point-to-point and multi-drop communications with:

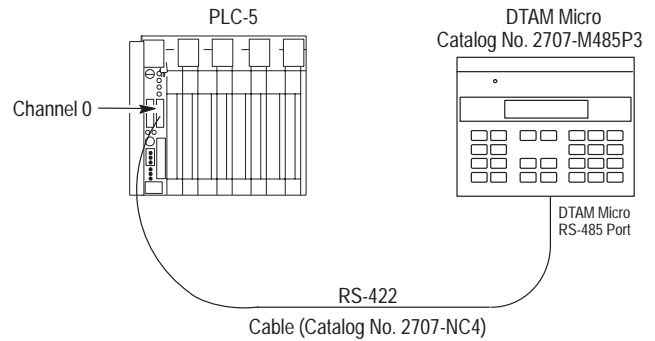
- PLC-5 Channel 0 (configured as an RS-422 port)
- SLC 500 Controller DH485 port

The figure below shows typical RS-485 connections.

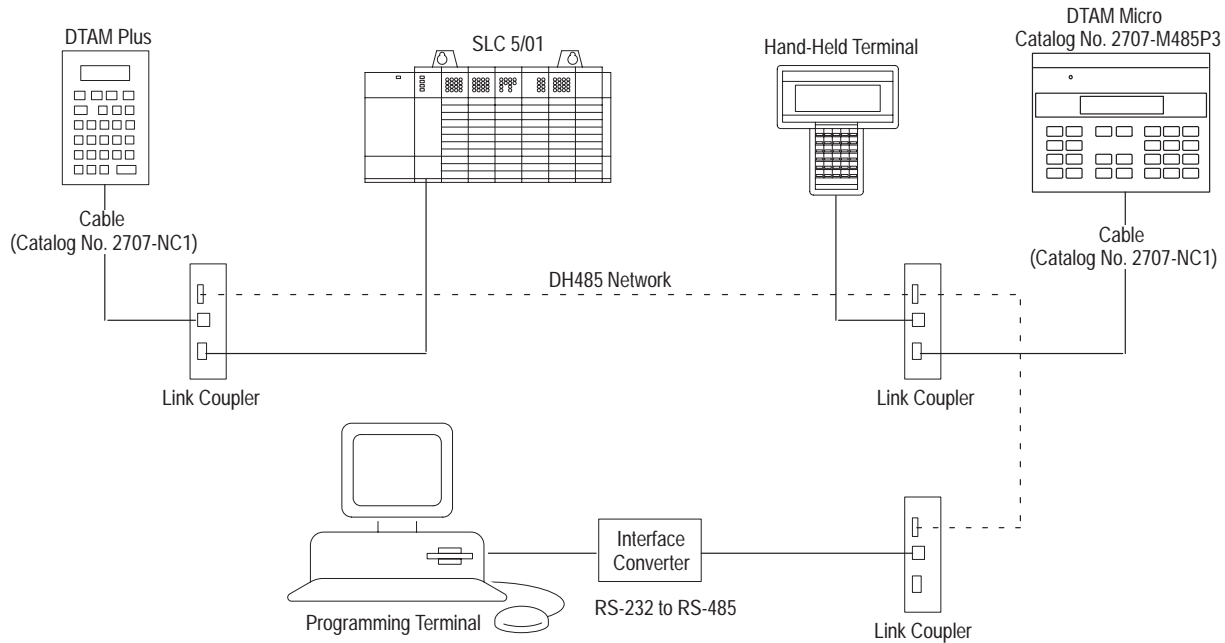
DTAM Micro to Single SLC

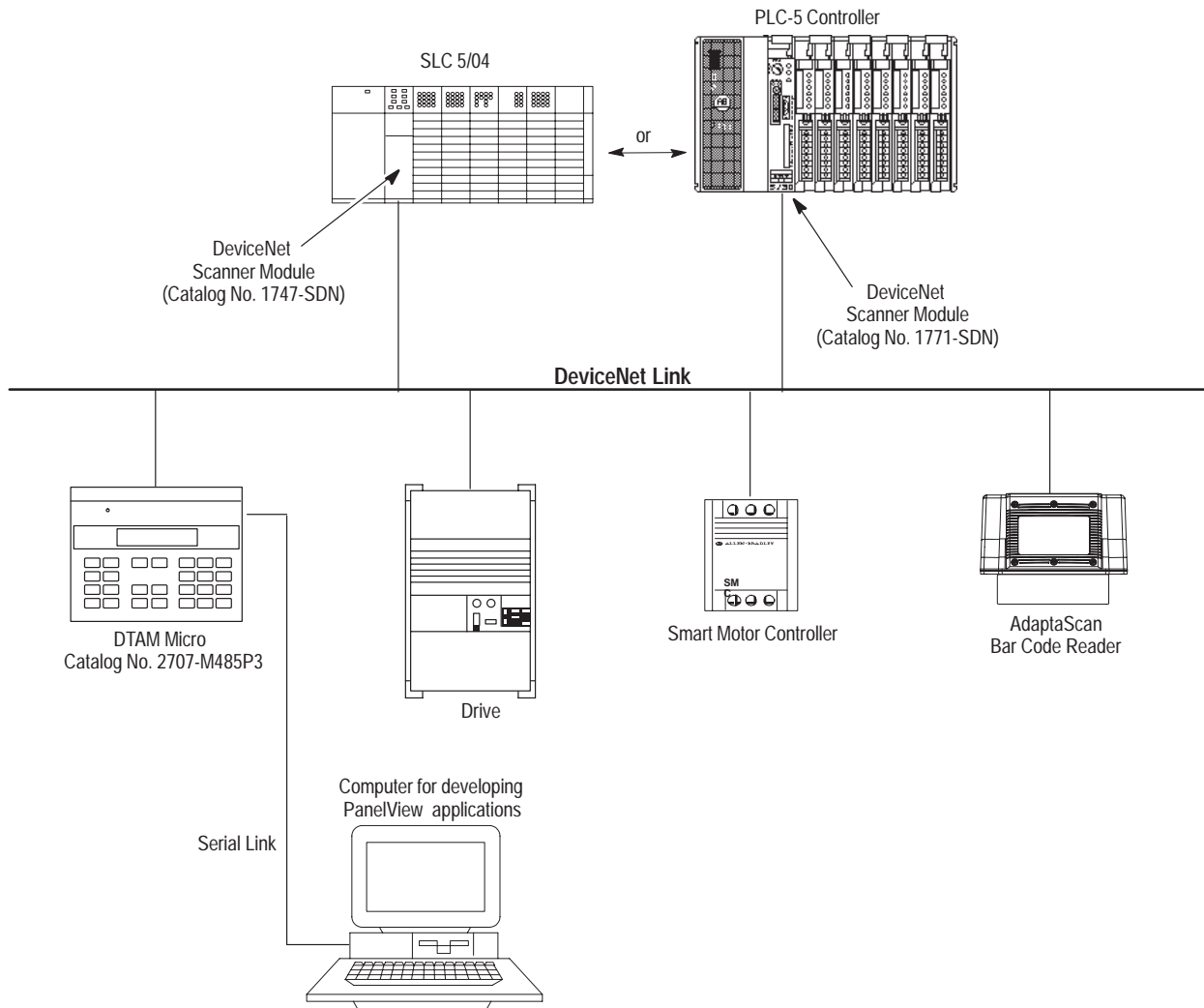


DTAM Micro to PLC-5 Channel 0



DTAM Micro to DH-485 Network

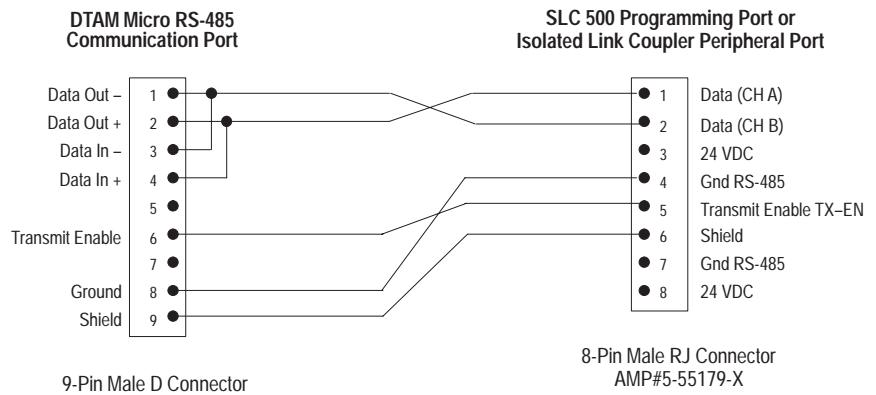




DTAM Micro Cables

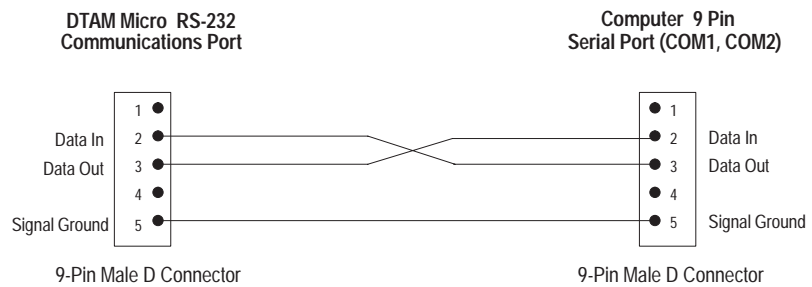
Catalog No. 2707-NC1

Use the RS-485 Network Interface Cable to connect the RS-485 version of the DTAM Micro (Catalog No. 2707-M485P3) to an SLC network.



Catalog No. 2707-NC2

Use the Download Cable to connect the RS-232 version of the DTAM Micro (Catalog No. 2707-M232P3) to a personal computer for transferring applications. A 25 to 9 pin adapter may be required if your computer has a 25 pin communication port.



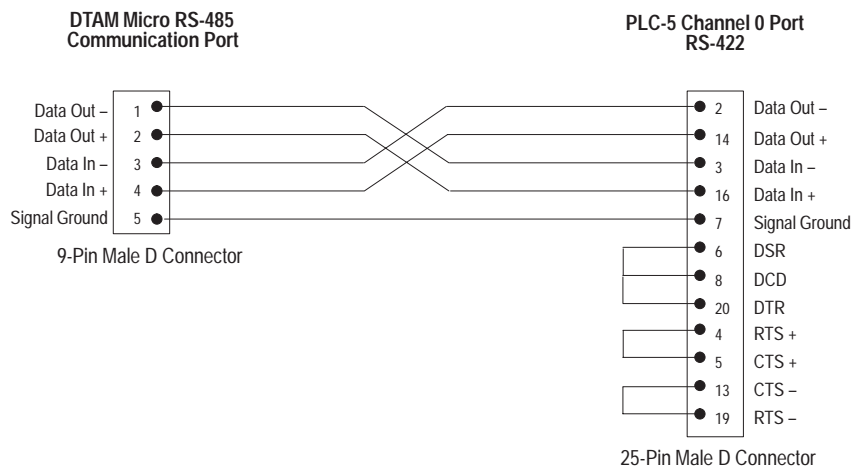
Catalog No. 2707-NC3

Use the RS-232 Communications Cable to connect the RS-232 version of the DTAM Micro (Catalog No. 2707-M232P3) to Channel 0 (configured as RS-232) of a PLC-5.



Catalog No. 2707-NC4

Use the RS-422 Communications Cable to connect the RS-485 port of the DTAM Micro (Catalog No. 2707-M485P3) to Channel 0 (configured as RS-422) of a PLC-5. The DTAM Micro RS-485 port is compatible with the PLC-5 RS-422 standard.



Catalog No. 2707-NC5

Use the RS-485 Upload/Download Cable to connect the RS-485 port of the DTAM Micro (Catalog No. 2707-M485P3) to a personal computer for transferring applications. The cable contains the circuitry to convert RS-232 signals to RS-422 signals. The DTAM Micro RS-485 port is compatible with the RS-422 output of the converter cable.

Product Options

The table below lists the options available for the DTAM Micro.

Item	Catalog No.	Description
DTAM Micro	2707-M485P3	DTAM Micro with RS-485 Communications Port
DTAM Micro	2707-M232P3	DTAM Micro with RS-232 Communications Port
Programming Software	2707-NP Series C or later	Use to create application screens for the DTAM Micro or DTAM Plus on a personal computer. Applications are transferred to the DTAM Micro directly from the software.

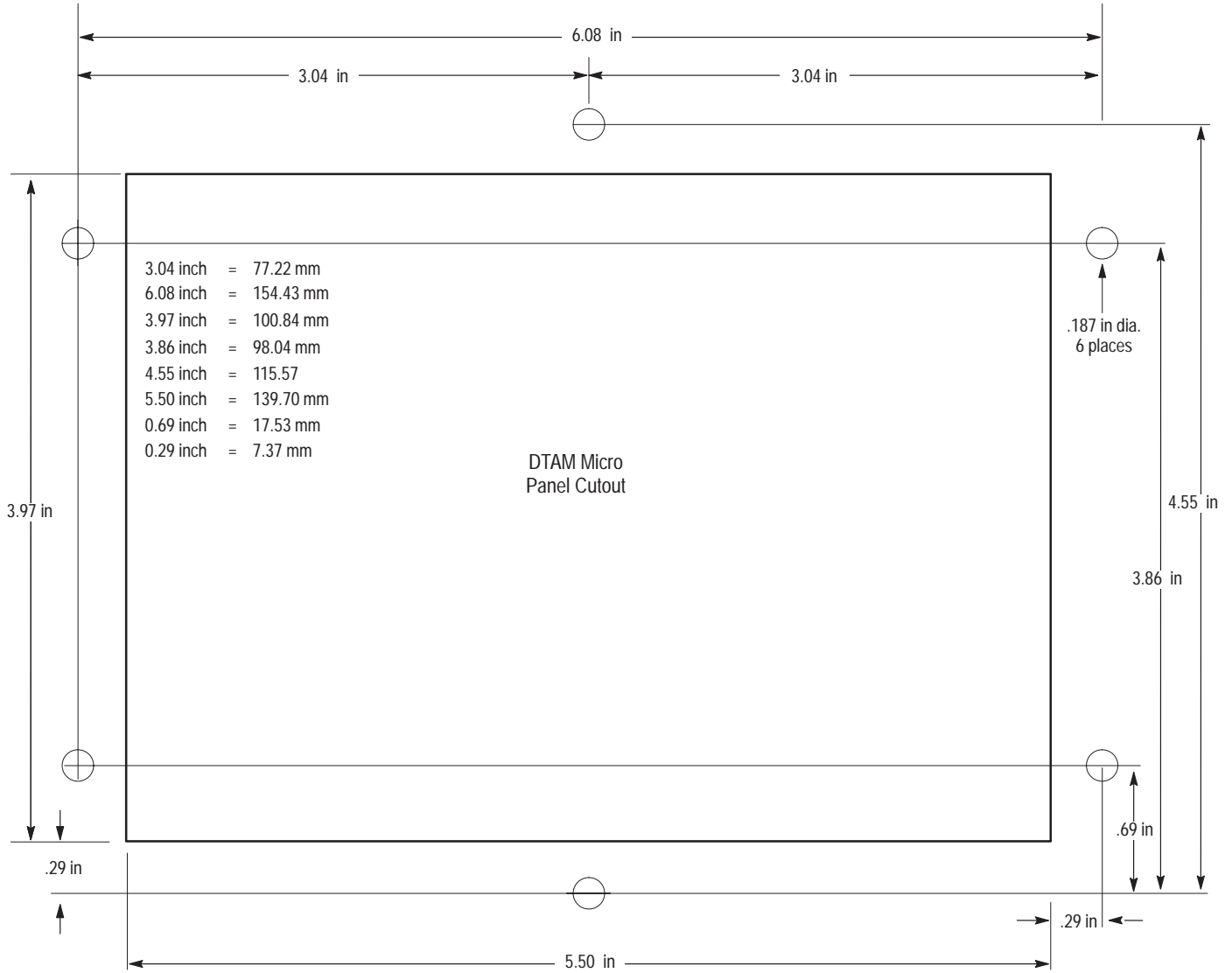
Product Accessories

The following accessories are available for the DTAM Micro.

Item	Catalog No.	Description
DH485 Network Interface Cable	2707-NC1	RS-485 communication cable connects DTAM Micro to an SLC network. Cable has 9-pin male connector for the communication port on the DTAM Micro and an 8-pin RJ connector for the communication port on the SLC or Link Coupler (Catalog No. 1747-AIC).
RS-232 Upload/Download Cable	2707-NC2	For use with RS-232 version of the DTAM Micro (Catalog No. 2707-M232P3). Transfers application files between RS-232 port of the DTAM Micro and the personal computer's RS-232 port.
RS-232 Communications Cable	2707-NC3	RS-232 cable connects DTAM Micro to Channel 0 Port of a PLC-5.
RS-485 Communications Cable	2707-NC4	RS-485 cable connects DTAM Micro to Channel 0 Port (configured for RS-422) of a PLC-5.
RS-485 Upload/Download Cable	2707-NC5	For use with RS-485 version of the DTAM Micro (Catalog No. 2707-M485P3). Transfers files between RS-485 port of the DTAM Micro and the personal computer's RS-232 port. Cable converts RS-232 signals to RS-422 signals for the DTAM Micro. Cable has a 25-pin male connector for the computer port and a 9-pin male connector for the port on the DTAM Micro. 9-pin to 25-pin adapter included for computers with a 9-pin communications port.
120V AC Adapter	1747-NP1	Provides 18 to 30 VDC output for the DTAM Micro. Operates on 120 VAC input line voltage.
240V AC Adapter	1747-NP2	Provides 18 to 30 VDC output for the DTAM Micro. Operates on 240 VAC input line voltage.
RS-232 Communications Cable	1747-CP3	RS-232 cable connects DTAM Micro to Channel 0 Port of the SLC 5/03.

Panel Cutout Template

Below is the panel cutout template for the DTAM Micro.



Product Data

Bulletin 2707

DTAM Micro Operator Interface

DTAM Micro 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° 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	
Catalog No. 2707-M232P3	RS-232
Catalog No. 2707-M485P3	RS-485 (Allen-Bradley DH-485)
Communication Distances	
RS-232	50 ft (15 meters) maximum
RS-485	4,000 ft (1219 meters) maximum with the Link Coupler (Catalog No. 1747-AIC)
RS-422	200 ft (61 meters) maximum with PLC-5
Input Voltage Range	18-30V DC
Input Current	200mA maximum

Environmental

Operating Temperature	0 to 45°C (32 to 113° F)
Storage Temperature	-20 to 70° C (-4 to 158° F)
Relative Humidity	5 to 95%, noncondensing
Shock	30G operating
Vibration	50G non-operating
Agency Rating	NEMA Type 4, 12, 13 (indoor use only) UL/CSA certification pending

Mechanical

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

NOTES:

PLC and PLC-5 are registered trademarks of Allen-Bradley Company, Inc.
SLC, SLC 500 and SLC 5/03 are trademarks of Allen-Bradley Company, Inc.



Allen-Bradley, a Rockwell Automation Business, has been helping its customers improve productivity and quality for more than 90 years. We design, manufacture and support a broad range of automation products worldwide. They include logic processors, power and motion control devices, operator interfaces, sensors and a variety of software. Rockwell is one of the worlds leading technology companies.

Worldwide representation.



Argentina • Australia • Austria • Bahrain • Belgium • Brazil • Bulgaria • Canada • Chile • China, PRC • Colombia • Costa Rica • Croatia • Cyprus • Czech Republic • Denmark • Ecuador • Egypt • El Salvador • Finland • France • Germany • Greece • Guatemala • Honduras • Hong Kong • Hungary • Iceland • India • Indonesia • Ireland • Israel • Italy • Jamaica • Japan • Jordan • Korea • Kuwait • Lebanon • Malaysia • Mexico • Netherlands • New Zealand • Norway • Pakistan • Peru • Philippines • Poland • Portugal • Puerto Rico • Qatar • Romania • Russia-CIS • Saudi Arabia • Singapore • Slovakia • Slovenia • South Africa, Republic • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • United Arab Emirates • United Kingdom • United States • Uruguay • Venezuela • Yugoslavia

Allen-Bradley Headquarters, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414 382-2000 Fax: (1) 414 382-4444