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The Embedded I/O Company

TIP866-TM-20

Transition Module for TIP866/TIP867

with 8 RJ45 Connectors

Version 1.0

User Manual

Issue 1.5

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TIP866-TM-20

Transition Module for TIP866 and TIP867 with 8 RJ45 Connectors

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Style Conventions

Hexadecimal characters are specified with prefix 0x, i.e. 0x029E (that means hexadecimal value 029E).

For signals on hardware products, an ‚Active Low' is represented by the signal name with # following, i.e. IP_RESET#.

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Issue	Description	Date
1.0	First Issue	September 1997
1.1	Redesign	January 1998
1.2	Add cable TA106-10	June 2002
1.3	Completion “Technical Specification”	April 2003
1.4	New address TEWS LLC	September 2006
1.5	Added details for Jumper Configuration	July 2007

Table of Contents

1 PRODUCT DESCRIPTION 6
2 TECHNICAL SPECIFICATION 7
3 CONNECTOR X1 PIN ASSIGNMENT 8
4 RJ45 PIN ASSIGNMENT 10
5 CONNECTOR X9 PIN ASSIGNMENT 11
6 JUMPER CONFIGURATION 12
7 ASSEMBLY DRAWING 13

Table of Figures

FIGURE 2-1 : TECHNICAL SPECIFICATION....7
FIGURE 3-1 : CONNECTOR X1 PIN ASSIGNMENT....9
FIGURE 4-1 : PIN ASSIGNMENT OF RJ45 CONNECTOR TIP866-TM-20 CHANNEL 1 AND 2....10
FIGURE 4-2 : PIN ASSIGNMENT OF RJ45 CONNECTOR TIP866-TM-20 CHANNEL 3 TO 8....10
FIGURE 4-3 : RJ45 PIN ASSIGNMENT....10
FIGURE 5-1 : PIN ASSIGNMENT OF X9 SCREW TERMINAL....11
FIGURE 6-1 : JUMPER FIELD JN5....12
FIGURE 7-1 : ASSEMBLY DRAWING....13

1 Product Description

The TIP866-TM-20 is a complete interface solution for the TIP866-10 (8 serial channels RS232), the TIP866-20 (8 serial channels RS422) and the TIP867-10 (8 serial channels RS485). The TIP866-TM-20 comes with a TA106-10 cable (0.8m ribbon cable with 50 pin ribbon cable connectors).

The 8 serial ports of the TIP866-10/-20 or the TIP867-10 are routed to 8 RJ45 connectors located in the 6U/4TE front panel of the TIP866-TM-20.

Jumper fields are provided for each channel to select the port configuration (DTE / DCE) for RS232 (Jn1 / Jn2) or RS422 (Jn3 / Jn4) and to select termination for the RS422 receiver (Jn5: 5-6, 7-8) or RS485 (Jn5: 1-2, 3-4).

A two pin screw terminal (X9) can be used to provide +5V to pin 1 of the RJ45 connectors of channel 3 to 8 and to supply the on board termination for RS422 and RS485. The +5V can be individually selected by jumper for each of the channels 3 to 8 (Jn5: 9-10).

TXD, RXD, RTS, CTS and GND are supported for each of the 8 serial channels of the TIP866-10 (RS232). Additionally DCD and DTR are supported for channel 1 and 2.

TXD+/-, RXD+/- and GND are supported for the TIP866-20 (RS422) and DX+/- and GND are supported for the TIP867-10 (RS485).

This transition module can also be used with the IP-Octals. If the TIP866-TM-20 is used with the IP-Octal RS232: do not connect jumpers on J11, J12, J21, J22: 9-10 and 11-12 because the IP-Octal RS232 does not support DCD and DTR on serial channel 1 and 2.

2 Technical Specification

Board Size	233 mm x 80 mm
Front panel	6U / 4TE front panel with 8 RJ45 connectors
Interface to IP	Connector for 50 conductor flat cable
Cable	TA106-10 (0.8m ribbon cable with 50 pin ribbon cable connectors)
Power Supply	+5V / GND by 2 pin screw terminal Power only required to supply on board termination or to provide +5V to pin 1 of the RJ45 connectors of channel 3 to 8. Fuse protected by a 1A Multifuse.
MTBF	377345h

Figure 2-1 : Technical Specification

3 Connector X1 Pin Assignment

X1 Pin	TIP866-10 (RS232)	TIP866-20 (RS422)	TIP867-10 (RS485)
1	GND	GND	GND
2	TXD1	TXD1-	DX1-
3	RXD1	TXD1+	DX1+
4	RTS1	RXD1-	nc
5	CTS1	RXD1+	nc
6	GND	GND	GND
7	TXD2	TXD2-	DX2-
8	RXD2	TXD2+	DX2+
9	RTS2	RXD2-	nc
10	CTS2	RXD2+	nc
11	GND	GND	GND
12	TXD3	TXD3-	DX3-
13	RXD3	TXD3+	DX3+
14	RTS3	RXD3-	nc
15	CTS3	RXD3+	nc
16	GND	GND	GND
17	TXD4	TXD4-	DX4-
18	RXD4	TXD4+	DX4+
19	RTS4	RXD4-	nc
20	CTS4	RXD4+	nc
21	GND	GND	GND
22	TXD5	TXD5-	DX5-
23	RXD5	TXD5+	DX5+
24	RTS5	RXD5-	nc
25	CTS5	RXD5+	nc
26	GND	GND	GND
27	TXD6	TXD6-	DX6-
28	RXD6	TXD6+	DX6+
29	RTS6	RXD6-	nc
30	CTS6	RXD6+	nc
31	GND	GND	GND
32	TXD7	TXD7-	DX7-
33	RXD7	TXD7+	DX7+
34	RTS7	RXD7-	nc
35	CTS7	RXD7+	nc
36	GND	GND	GND
37	TXD8	TXD8-	DX8-
38	RXD8	TXD8+	DX8+
39	RTS8	RXD8-	nc

X1 Pin	TIP866-10 (RS232)	TIP866-20 (RS422)	TIP867-10 (RS485)
40	CTS8	RXD8+	nc
41	nc	nc	nc
42	nc	nc	nc
43	DCD1	nc	nc
44	DTR1	nc	nc
45	nc	nc	nc
46	nc	nc	nc
47	DCD2	nc	nc
48	DTR2	nc	nc
49	nc	nc	nc
50	nc	nc	nc

nc = not connected on the TIP866-TM-20

Figure 3-1 : Connector X1 Pin Assignment

4 RJ45 Pin Assignment

Pin No. RJ45	RS232 DTE (Jn1)	RS232 DCE (Jn2)	RS422 DTE (Jn3)	RS422 DCE (Jn4)	RS485 (Jn3)
1	DCD	DTR			
2	RTS	CTS	TXD+	RXD+	DX+
3	GND	GND	GND	GND	GND
4	TXD	RXD	TXD-	RXD-	DX-
5	RXD	TXD	RXD-	TXD-	
6	GND	GND	GND	GND	GND
7	CTS	RTS	RXD+	TXD+	
8	DTR	DCD			

Figure 4-1 : Pin Assignment of RJ45 Connector TIP866-TM-20 Channel 1 and 2

Pin No. RJ45	RS232 DTE (Jn1)	RS232 DCE (Jn2)	RS422 DTE (Jn3)	RS422 DCE (Jn4)	RS485 (Jn3)
1	(+5V)	(+5V)	(+5V)	(+5V)	(+5V)
2	RTS	CTS	TXD+	RXD+	DX+
3	GND	GND	GND	GND	GND
4	TXD	RXD	TXD-	RXD-	DX-
5	RXD	TXD	RXD-	TXD-	
6	GND	GND	GND	GND	GND
7	CTS	RTS	RXD+	TXD+	
8					

Figure 4-2 : Pin Assignment of RJ45 Connector TIP866-TM-20 Channel 3 to 8

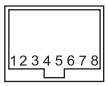


Figure 4-3 : RJ45 Pin Assignment

5 Connector X9 Pin Assignment

Pin	Signal
1	GND
2	+5V

Figure 5-1 : Pin Assignment of X9 Screw Terminal

6 Jumper Configuration

Position	Function
1-2	Installed: 120R On Board Termination for RS485 Mode active
3-4	Open: No On Board Termination for RS485 Mode
5-6	Installed: 120R On Board Termination for RS422 Modes active
7-8	Open: No On Board Termination for RS422 Modes
9-10 (Channels 3 to 8 only)	Channels 3 to 8 only: Connection X9 Pin 2 Power Supply to RJ45 Pin 1

Figure 6-1 : Jumper Field Jn5

Jumper Configuration Notes:

There are 5 jumper fields per serial channel n (Jn1 to Jn5) (n = Serial Channel 1 to 8).

Jn1 to Jn4 are used to select the desired RJ45 pin assignment and function as shown in the RJ45 pin assignment tables.

Only one jumper field of Jn1 to Jn4 must be installed at a time. A jumper field Jn1 to Jn4 is installed by plugging all jumpers of the jumper field. Remove all jumpers from the other jumper fields of the Jn1 to Jn4 group.

Channel 1 and 2 of the TIP866-TM-20 additionally support DCD and DTR for the TIP866-10.

Default configuration for TIP866-TM-20: all jumpers installed on Jn1 => *RS232 DTE*.

Jn5 is used for enabling an on board 120R termination resistor for the RS422 and RS485 modes.

If on board termination is desired, only one termination block of jumper field Jn5 must be installed at a time. Either 1-2, 3-4 for the RS485 mode or 5-6, 7-8 for the RS422 modes. If RS232 modes are selected or on board termination is not desired, leave Jn5 1-2, 3-4, 5-6, 7-8 open.

Using the on board termination feature requires a +5V power supply at the X9 connector (2 pin screw terminal).

Do not use the on board termination feature of the TIP866-TM-20 when connecting a TIP866-20 (RS422) because there are termination resistors on the TIP866-20 !

Support of +5V at pin 1 of the RJ45 connector for channel 3 to 8 is jumper selectable (Jn5: 9-10) and requires a +5V power supply at the X9 connector (2 pin screw terminal).

7 Assembly Drawing

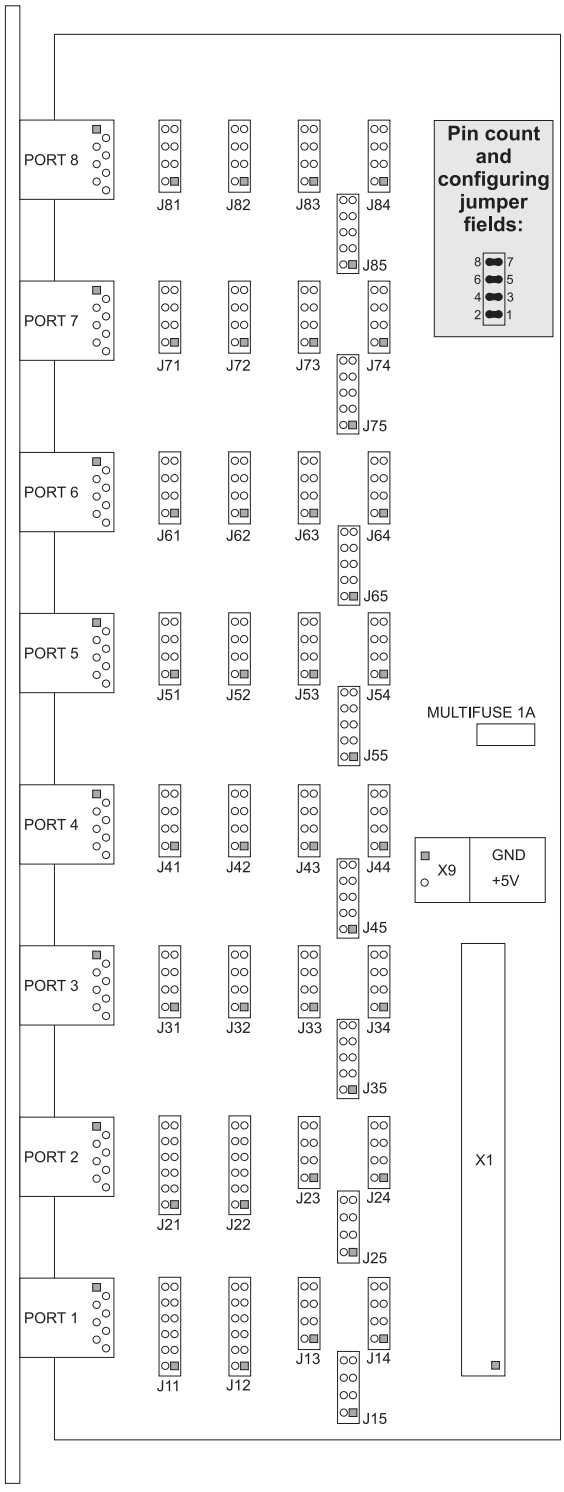


Figure 7-1 : Assembly Drawing

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