

3010 Asynchronous Line Driver

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1. description and application

1.01 The Tellabs 3010 Asynchronous Line Driver (figure 1) derives balanced differential transmit and receive signals via its internal line driver circuitry at one end, and accepts an EIA RS-232-C-compatible interface at the other end. This interface capability allows the 3010 to support asynchronous full-duplex data transmission over 4wire facilities (for one data terminal) for distances up to 2 miles at 9600 baud or longer distances at lower baud rates. The 3010 is a stand-alone unit designed for asynchronous communication only.

1.02 In the event that this practice section is reissued, the reason for reissue will be stated in this paragraph.

1.03 Figure 2 shows an application where a remote terminal interfaces a computer via a 4wire facility with 3010's at each end. The 3010 at the terminal end and the 3010 at the computer end are both optioned for data-terminal-equipment (DTE) configuration. Figure 3 shows an application where a remote terminal interfaces a 330 Dataplexer equipped with a 3009 Channel Module via a 4wire facility with a 3010 at the terminal end. The 3010 at the terminal end is optioned for DTE configuration while the 3009 in the Dataplexer is optioned for 4wire facility interface by using the appropriate cable.

Note: The 3010 does not pass modem control mapping over the 4wire facility and cannot be used in applications that require modem control toggling between the host and the terminal.

1.04 For the 3010 Line Driver, RS-232-C signals are interfaced by a subminiature 25-pin D-type male connector that is attached to a 3-inch length of ribbon cable. The 3010's differential transmit and receive signals are interfaced by a standard six-pin modular phone jack. Connection to the 4wire facility is made via the Tellabs 50-4029 modular-jack-to-spade-terminal cable assembly. The 3010's 4wire lines must be unconditioned, nonloaded facilities with **dc continuity** (Bell System tariff 3081) or any equivalent customer-supplied 4wire cables.

1.05 The 3010 Line Driver is powered by nominal 18Vac input, which is provided by an external transformer (supplied with the 3010) that plugs into a standard 117Vac, 60Hz wall outlet.

2. installation

inspection

2.01 The 3010 Asynchronous Line Driver should be visually inspected upon arrival to find possible

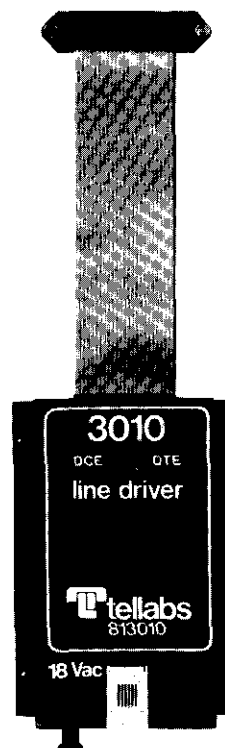


figure 1. 3010 Asynchronous Line Driver

damage incurred during shipment. If damage is noted, a claim should immediately be filed with the carrier. If stored, the unit should be visually inspected again prior to installation.

optioning

2.02 The 3010 contains a slide switch for selection of DCE or DTE configuration. Figure 4 shows the location of this option switch, which is accessible without removing the unit's cover. Set the DCE/DTE switch to the DTE position when the 3010 interfaces data terminal equipment. Set the DCE/DTE switch to the DCE position when the 3010 interfaces data communication equipment.

installer connections (general)

2.03 Figure 5 shows the required connections for the application in figure 2, while figure 6 shows the required connections for the application in figure 3. These figures can be used as installation guides for applications of the types shown.

installer connections

2.04 **RS-232-C Connections.** Connections to the RS-232-C serial link are made via a subminiature 25-pin D-type male connector attached to the 3010 by a 3-inch length of ribbon cable. The 3010's D-type connector is connected directly to the equipment being interfaced. The lead assignments for the 3010's D-type connector are listed in table 1 for both DTE and DCE configuration (for reference purposes).

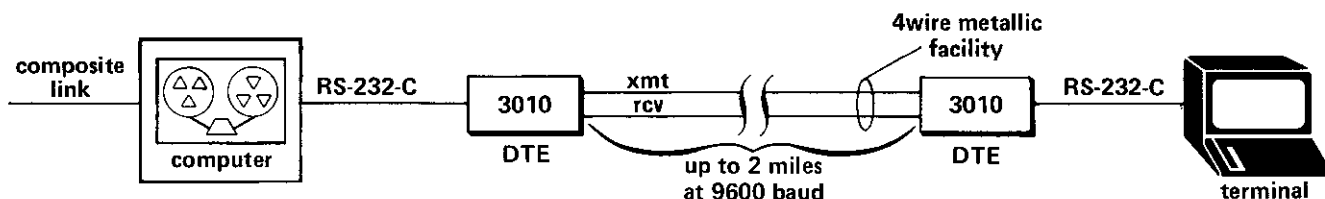


figure 2. Computer-to-terminal application

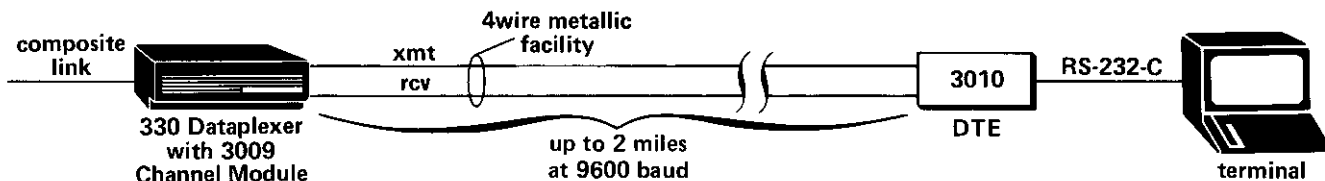


figure 3. Dataplexer-to-terminal application

pin	lead name	connection made for:	
		DTE configuration	DCE configuration
1	protective ground (PG)	GND	GND
2	transmit data (TD)	transmit data input	transmit data output
3	receive data (RD)	receive data output	receive data input
4	request to send (RTS)	internally connected to CTS	+12Vdc
5	clear to send (CTS)	internally connected to RTS	no connection
6	data set ready (DSR)	+12Vdc	no connection
7	signal ground (SG)	GND	GND
8	data carrier detect (DCD)	+12Vdc	no connection
20	data terminal ready (DTR)	no connection	+12Vdc

table 1. Lead assignments for 3010 Line Driver's 25-pin D-type connector
(for DTE and DCE configurations)

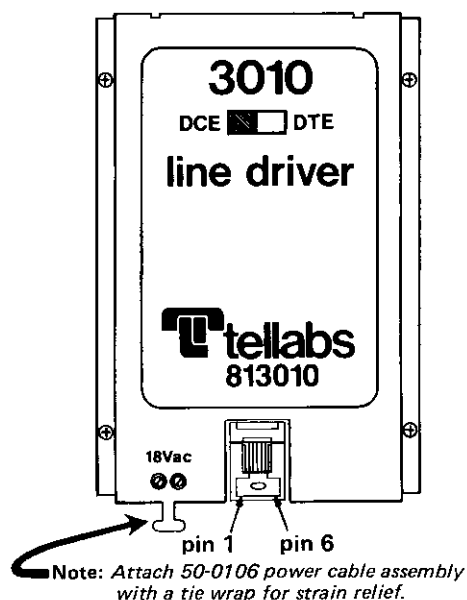


figure 4. Pin numbering of modular phone jack, 18Vac power input terminal, and DCE/DTE option switch

2.05 4Wire Metallic Facility Connections. Connections to the 4wire facility are made via a standard six-pin modular phone jack mounted on the 3010. Table 2 lists the lead assignments for this jack (these are the required connections to the 4wire facility), and figure 4 shows the pin numbering for the jack. Tellabs supplies as standard equipment the proper adapter cable (part number 50-

4029) that plugs into the modular phone jack and brings the facility connections out to four spade-lug connectors. Make connections to the 4wire facility as shown in figure 5 or figure 6 (TP to RP, TN to RN, etc.).

2.06 Power Connections. The 3010 is powered by 18Vac input, which is provided by an external transformer (supplied with the 3010) that plugs into a standard 117Vac, 60Hz wall outlet. Before plugging the transformer into the outlet, make the following connection: using the 6-foot cable supplied with the 3010, connect the 18Vac terminals on the 3010's transformer to the 3010's 18Vac power input terminals (see figure 4). Because the power input is ac, polarity is immaterial. After making this connection, plug the 3010's transformer into a standard wall outlet.

mounting

2.07 The 3010 is a stand-alone unit and requires no mounting as such. However, double-sided tape can be used to attach the unit to any solid, out-of-the-way surface.

lead name:	pin number:
TP (transmit positive)	1
TN (transmit negative)	2
RP (receive positive)	5
RN (receive negative)	6

table 2. Lead assignments for 3010's six-pin modular connector

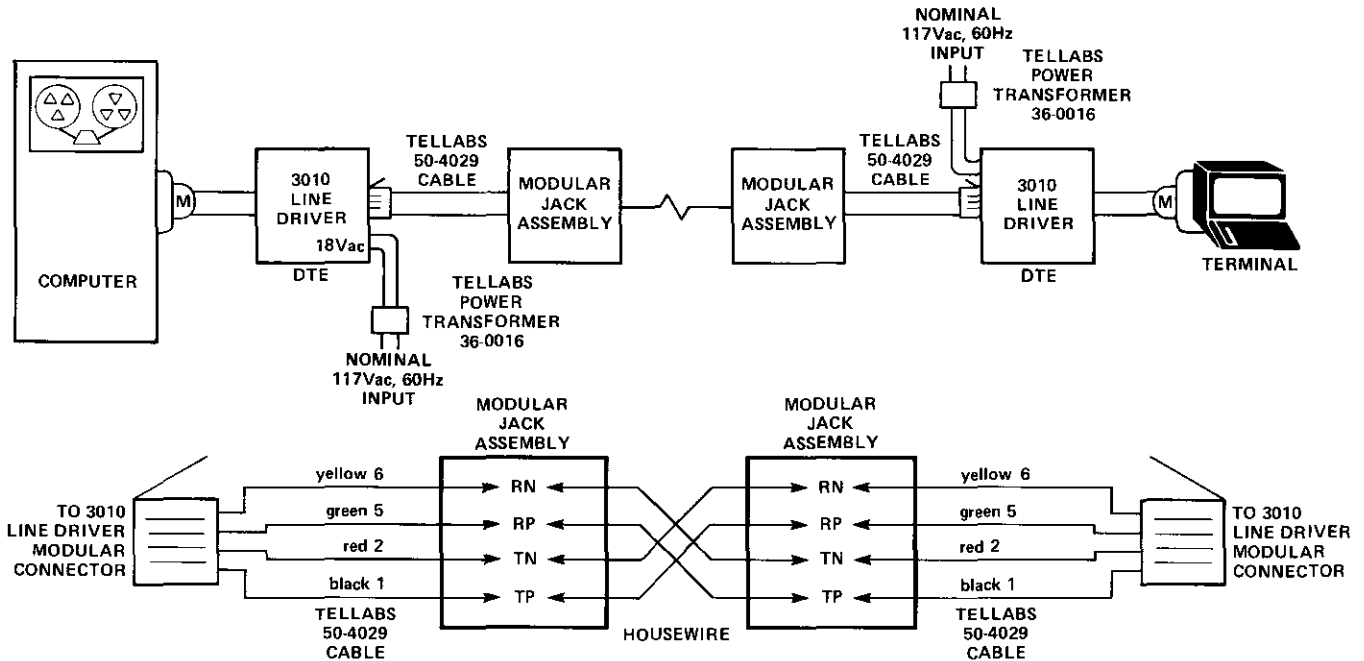


figure 5. Connections for computer-to-terminal application

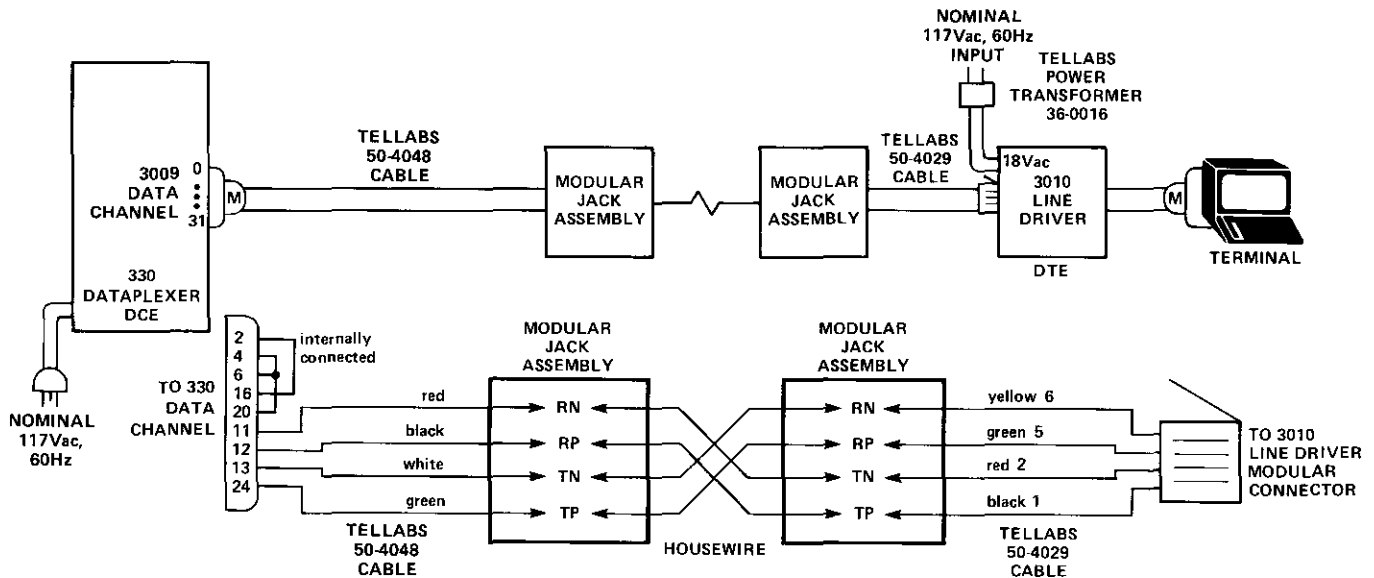


figure 6. Connections for Dataplexer-to-terminal application

3. specifications

number of channels
one

terminal interface

EIA RS-232-C via subminiature 25-pin D-type male connector; see table 1 for lead assignments and connections

line characteristics

cable requirements: 4wire, unconditioned, non-loaded facility with dc continuity (Bell System tariff 3081) or an equivalent customer-supplied 4wire cable

line interface: transmit and receive leads via six-pin modular phone jack

transmission range (over 24-gauge cable):

2 miles at 9600bps	7 miles at 1200bps
3 miles at 4800bps	10 miles at 600bps
5 miles at 2400bps	

signal loss (worst case)

9dB of loss at 4800Hz (9600bps)

DCE/DTE configuration

selectable via an option switch accessible through slot in 3010's cover

RFI filtering

none

standard equipment

36-0016: 117Vac-to-18Vac power transformer

50-0106: power cable assembly, power transformer to 3010

50-4029: cable assembly, modular jack to spade terminals

input power requirements (via external transformer supplied with 3010)

voltage: 18Vac nominal (acceptable range from 16Vac to 26Vac)

current: 110mA maximum

operating environment

**32° to 131°F (0° to 55°C), humidity to 95%
(no condensation)**

dimensions

0.8 inches (2.03cm) high

2.75 inches (6.96cm) wide

3.98 inches (10.1 cm) deep

weight

5 ounces (142 grams)

mounting

free-standing

4. testing and troubleshooting

4.01 The Testing Guide Checklist in this section may be used to assist in the installation, testing, or troubleshooting of the 3010 Asynchronous Line Driver. The Checklist is intended as an aid in the localization of trouble to a specific unit. If a unit is suspected of being defective, a new one should be substituted and the test conducted again. If the substitute unit operates correctly, the original unit should be considered defective and returned to Tellabs for repair or replacement. We strongly recommend that no internal (component-level) testing or repairs be attempted on the 3010. Unauthorized testing or repairs may void the unit's warranty.

4.02 Tellabs warrants this product to be free of defective components, workmanship, and design for a period of two years from the date of manufacture, when applied as outlined in our practices, subject to handling and installation commensurate with industry standards for solid-state electronic equipment. If this product does not prove to be free of defective components, workmanship, and design under these criteria, Tellabs will replace or repair it free of charge.

Note: *Warranty service does not include removal of permanent customer markings on Tellabs products, although an attempt will be made to do so. If a product must be marked defective, we recommend that it be done on a piece of tape or on a removable stick-on label.*

4.03 For additional information on the 330 family of data products, or if a situation arises that is not covered in the Checklist, please contact Tellabs Customer Service at your Tellabs Regional Office

or at our Lisle, Illinois, or Mississauga, Ontario, Headquarters. Telephone numbers are as follows:

Us central region: (312) 969-8800

US northeast region: (412) 787-7860

US southeast region: (305) 645-5888

US western region: (702) 827-3400

Lisle Headquarters: (312) 969-8800

Mississauga Headquarters: (416) 624-0052

4.04 If a 3010 is diagnosed as defective, the situation may be remedied by either *replacement* or *repair and return*. Because it is more expedient, the *replacement* procedure should be followed whenever time is a critical factor (e.g., service outages, etc.).

replacement

4.05 To obtain a replacement 3010, notify Tellabs via letter (see addresses below), telephone (see numbers above), or twx (910-695-3530 in the USA, 610-492-4387 in Canada). Be sure to provide all relevant information, including the 8X3010 part number that indicates the issue of the unit in question. Upon notification, we shall ship a replacement to you. If the unit in question is in warranty, the replacement will be shipped at no charge. Pack the defective 3010 in the replacement's carton, sign the packing slip included with the replacement, and enclose it with the defective unit (this is your return authorization). Affix the preaddressed label provided with the replacement unit to the carton being returned, and ship the unit prepaid to Tellabs.

repair and return

4.06 Return the defective 3010, shipment prepaid, to Tellabs (attn: repair and return).

in the USA: Tellabs Incorporated

4951 Indiana Avenue

Lisle, Illinois 60532

in Canada: Tellabs Communications Canada, Ltd.

1200 Aerowood Drive, Unit 39

Mississauga, Ontario, Canada L4W 2S7

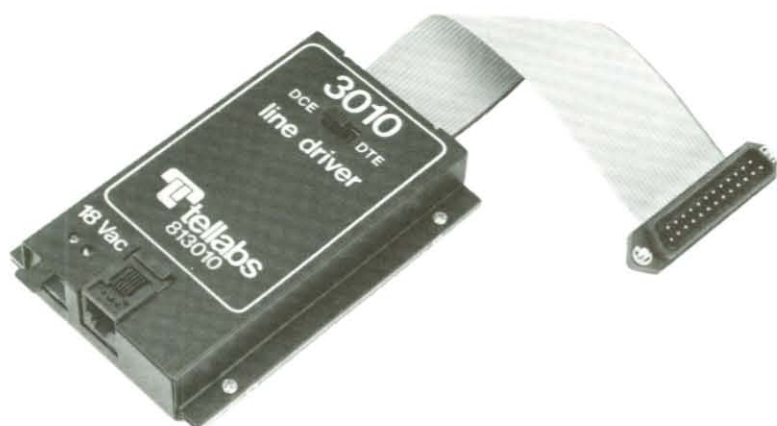
Enclose an explanation of the malfunction. Follow your company's standard procedure with regard to administrative paperwork. Tellabs will repair the unit and ship it back to you. If the unit is in warranty, no invoice will be issued.

testing guide checklist

fault condition	troubleshooting steps
3010 inoperative	<input type="checkbox"/> Make certain that all wiring connections to the 4wire facility are secure and correct. <input type="checkbox"/> Make certain that the DCE/DTE option switch is properly set for your application. <input type="checkbox"/> Make certain that the power transformer is connected to a powered 117Vac, 60Hz outlet. <input type="checkbox"/> Make certain that the power connections to the 3010 from the power transformer are secure. <input type="checkbox"/> Use a VOM to check the 3010's input voltage from the power transformer. The input should be nominal 18Vac, i.e., between 16 and 26Vac.

Tellabs Incorporated
4951 Indiana Avenue, Lisle, Illinois 60532
telephone (312) 969-8800 twx 910-695-3530

3010 asynchronous line driver



Tellabs' 3010 Asynchronous Line Driver is designed to interface a remote terminal with a Tellabs 330 Dataplexer, a Tellabs 331 Xplexer, or a computer via a 4wire metallic transmission facility. The 3010 derives balanced differential transmit and receive signals via its internal line-driver circuitry at one end, and accepts an EIA RS-232-C-compatible interface at the other end. This

interface capability allows the 3010 to support asynchronous full-duplex data transmission over 4wire facilities (for one data terminal) for distances up to 2 miles at 9600 baud or for longer distances at lower baud rates. The 3010 is a stand-alone unit designed for asynchronous communication only.

Figure 1 shows an application where a remote terminal interfaces a computer via a

4wire facility with 3010's at each end. Figure 2 shows an application where a remote terminal interfaces a 330 Dataplexer equipped with a 3009 Channel Module via a 4wire facility with a 3010 at the terminal end. The 3010 can be switch-optional for either DCE or DTE configuration, depending upon its location in the data system.

The 3010 is powered by nominal 18Vac input, which is provided by an external transformer (supplied with the 3010). The transformer plugs into any standard 117Vac, 60Hz, grounded wall outlet and is connected to the 3010 via a 6-foot cable (also supplied with the 3010).

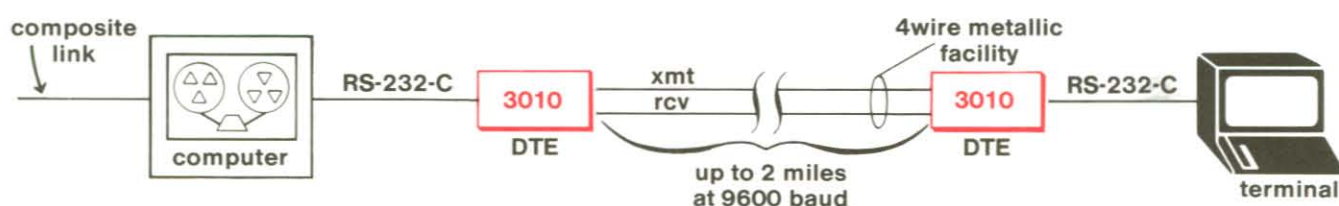


figure 1. Computer-to-terminal application

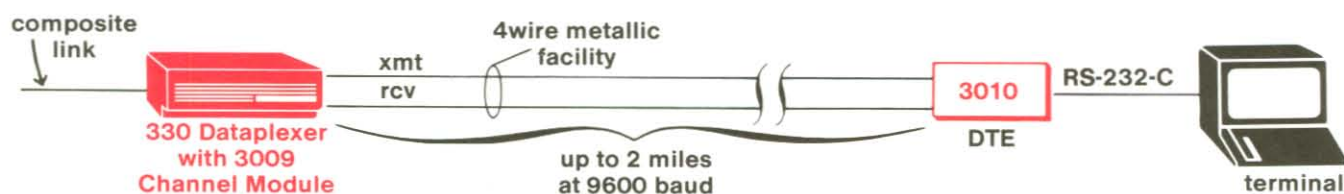


figure 2. Dataplexer-to-terminal application

Tellabs Incorporated
4951 Indiana Avenue
Lisle, Illinois 60532
telephone (312) 969-8800
twx 910-695-3530

Tellabs Communications Canada, Ltd.
1200 Aerowood Drive, Unit 39
Mississauga, Ontario, Canada L4W 2S7
telephone (416) 624-0052
twx 610-492-4387

specifications

number of channels	one						
terminal interface	EIA RS-232-C via subminiature 25-pin D-type male connector						
line characteristics	<p>cable requirements: 4wire, unconditioned, non-loaded facility with dc continuity (Bell System tariff 3081) or an equivalent customer-supplied 4wire cable</p> <p>line interface: transmit and receive leads via six-pin modular phone jack</p> <p>transmission range (over 24-gauge cable):</p> <table><tr><td>2 miles at 9600bps</td><td>7 miles at 1200bps</td></tr><tr><td>3 miles at 4800bps</td><td>10 miles at 600bps</td></tr><tr><td>5 miles at 2400bps</td><td></td></tr></table>	2 miles at 9600bps	7 miles at 1200bps	3 miles at 4800bps	10 miles at 600bps	5 miles at 2400bps	
2 miles at 9600bps	7 miles at 1200bps						
3 miles at 4800bps	10 miles at 600bps						
5 miles at 2400bps							
signal loss (worst case)	9dB of loss at 4800Hz (9600bps)						
DCE/DTE configuration	selectable via an option switch accessible through slot in 3010's cover						
RFI filtering	none						
standard equipment	36-0016: 117Vac-to-18Vac power transformer 50-0106: power cable assembly, power transformer to 3010 50-4029: cable assembly, modular jack to spade terminals						
input power requirements (via external transformer supplied with 3010)	voltage: 18Vac nominal (acceptable range from 16Vac to 26Vac) current: 110mA maximum						
operating environment	32° to 131° F (0° to 55° C), humidity to 95% (no condensation)						
dimensions	0.8 inches (2.03cm) high 2.75 inches (6.96cm) wide 3.98 inches (10.1cm) deep						
weight	5 ounces (142 grams)						
mounting	free-standing						



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