

# USER MANUAL

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## MODEL 465F and 465MC G.703 Coax to Twisted Pair Adapters (BALUNS)



**PATTON**  
**Electronics Co.**



An ISO-9001  
Certified Company

Part # 07M465-A  
Doc. #019141UA  
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## 1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 465 Series components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment. This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall Patton Electronics be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. Patton Electronics specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

### 1.1 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the Union European (EU). A Certificate of Compliance is available by contacting Patton Technical Support.

### 1.2 SERVICE AND SUPPORT

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at **(301) 975-1007**; <http://www.patton.com>: or, [support@patton.com](mailto:support@patton.com).

**NOTE:** Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 465 Series. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

## 2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

### 2.1 FEATURES

- Connects 75 Ohm 1.6/5.6 mm. dual coax terminations to 120 Ohm twisted pair, RJ-45 termination
- Bi-directional signal conversion according to CCITT G.703
- Data Rates up to **2.048 Mbps (E1)**
- Low profile design
- No AC power or batteries required
- Two versions: miniature balun and balun with two six in./15.25 mm. cables

### 2.2 DESCRIPTION

The Patton 465 Series enables 75 Ohm coax hardware to communicate with 120 Ohm twisted pair equipment. The Model 465 Series specifically addresses the ONP (Open Network Provision) requirement that European PTTs offer 120 Ohm twisted pair terminations to their customers. Some PTTs and private carriers are standardized on 75 Ohm coax, or have customers whose CPE has only 75 Ohm coax connections. The 465 Series presents a ready solution to this termination mismatch. Supporting E1 data rates to 2.048 Mbps, the 465 Series converts 75 Ohm signals to 120 Ohm, and vice versa.

The Model 465 Series is available in two versions; a miniature balun and a balun with two six in./15.25 mm. cables.

### 3.0 CONFIGURATION

The following section describes configuring the Model 465 Series. The Model 465 Series is preset to work in most applications without additional configuration. The only user-configurable parameters are the shield connections between the 75 Ohm coax and 120 Ohm interfaces.

The shields are connected between the modular jack and dual 1.6/5.6 connectors (see Appendix B). The shield on the RJ-45 jack always connects to the transmit data shield (pin 3). RJ-45 (pin 3) connects to the coax transmit shield via JP1. RJ-45 (pin 6) connects to the coax receive shield via JP2. Remove the jumpers to break the connection.

RJ-45 (120 ohm)	Jumper	Coax 1.6/5.6 mm. (75 ohm)
Pin 3 (TX Shield)	JP1	TX Out Coax Shield
Pin 6 (RX Shield)	JP2	RX In Coax Shield

**Table 1.** Jumper settings

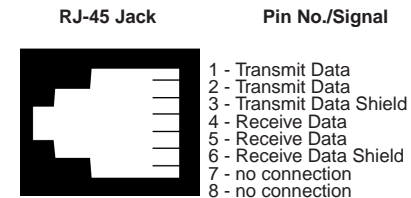
The factory setting leaves both jumpers JP1 and JP2 (see Table 1 above) in place, passing both shield connections through. To break one or both of the shield connections, follow the instructions below.

- 1) Insert a flat blade screwdriver into the slot on the side of the 465 Series case and twist. The case will pop open, exposing the PC board.
- 2) Holding the PC board with the RJ-45 jack facing left, locate jumper JP1 toward the top of the board and JP2 toward the bottom of the board. Remove the desired jumper(s) to break one or both shield connections.  
**NOTE:** Do not lose the jumper(s).
- 3) Re-align the case halves and end inserts and snap the case halves back together.

### Twisted Pair/Coaxial Cable Connections

See Figure 1 below for RJ-45 pin connections.

- 1) Both the 465MC and the 465F have a shielded RJ-45 jack.
- 2) The 465MC has male 1.6/5.6 mm. coaxial connectors (i.e., center conductor is a pin) and the 465F has female 1.6/5.6 mm. coaxial connectors (i.e., center conductor is a receptacle).
- 3) Pins 1 and 2 of the RJ-45 jack are the transmit data signals.
- 4) Pins 4 and 5 of the RJ-45 jack are receive data signals.
- 5) The shield of the RX IN coax connector may be connected to RJ-45 (pin 6) by jumper **JP2** (on).
- 6) The shield of the TX OUT coax connector is connected via **JP1** to transmit data shield, RJ-45 (pin 3) and the shield of the RJ-45 jack. Transmit data shield on the RJ-45 (pin 3) jack is always connected to the shield of the RJ-45 jack.



**Figure 1.** RJ-45 Pin Connections

## 4.0 INSTALLATION

The Model 465 Series requires no AC power or batteries for operation. After making any necessary configuration changes (see section 3.0), simply plug in the modular and coax cables as indicated on the case. The pin configuration of the 120 Ohm RJ-45 modular connector appears below:

<u>RJ-45 Pin(s)</u>	<u>Function</u>
1 & 2.....	TX Pair
3.....	TX Shield
4 & 5.....	RX Pair
6.....	RX Shield

## APPENDIX A

### PATTON ELECTRONICS 465 SERIES

#### SPECIFICATIONS

<b>Transmission Line:</b>	ITU/CCITT G.703 (unstructured)
<b>Data Rate:</b>	2.048 Mbps maximum
<b>Unbalanced Coaxial Connection:</b>	Dual coax 1.6/5.6 mm. connectors, male or female (RG 59 or 2002 coax) Nominal Line Impedance = 75 Ohms
<b>Balanced Twisted Pair Connection:</b>	Single 8-pin, shielded RJ-45 jack Two twisted-pair Nominal Line Impedance = 120 Ohms
<b>Power Supply:</b>	None required, passive device
<b>Coaxial Twisted Pair Isolation:</b>	500V rms
<b>Compliance:</b>	CE approved
<b>Dimensions:</b>	0.8H x 1.7W x 2.7D in. 2.03H x 4.32W x 6.86D cm.

**APPENDIX B**

**PATTON ELECTRONICS 465 SERIES**

**BLOCK DIAGRAM**

