



# TP-5290

## TRBO™ PANEL Emergency Display Panel

>>>> **USER HANDBOOK**



ACMA Supplier Code **N468**

**ISO9001 Certified**

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FOR

**Motorola Solutions Australia**



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# USER HANDBOOK

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# 1. TRBO™PANEL Emergency Display Panel

Model TP-5290

## 1.1 High Level Description

TRBO™PANEL provides high visibility alarm call data for timely response to emergency incidents and the safety of prison officers.

TRBO™PANEL is an Emergency Display Panel that receives alarm calls made from a prison officer's portable radio to the base radio in the central control station. The radio ID number and its associated alias (contact name) are immediately displayed on the LED dot matrix display.

Also displayed on TRBO™PANEL, in the top left corner, is a queue position number from 1 to 200 showing the order in which the alarm calls were received, with 1 being the longest standing alarm, 2 being the second longest standing and so on. When an alarm is cleared by the control station officer, the previous alarm is automatically moved up in the alarm list and stamped with the queue position number of the cleared alarm.

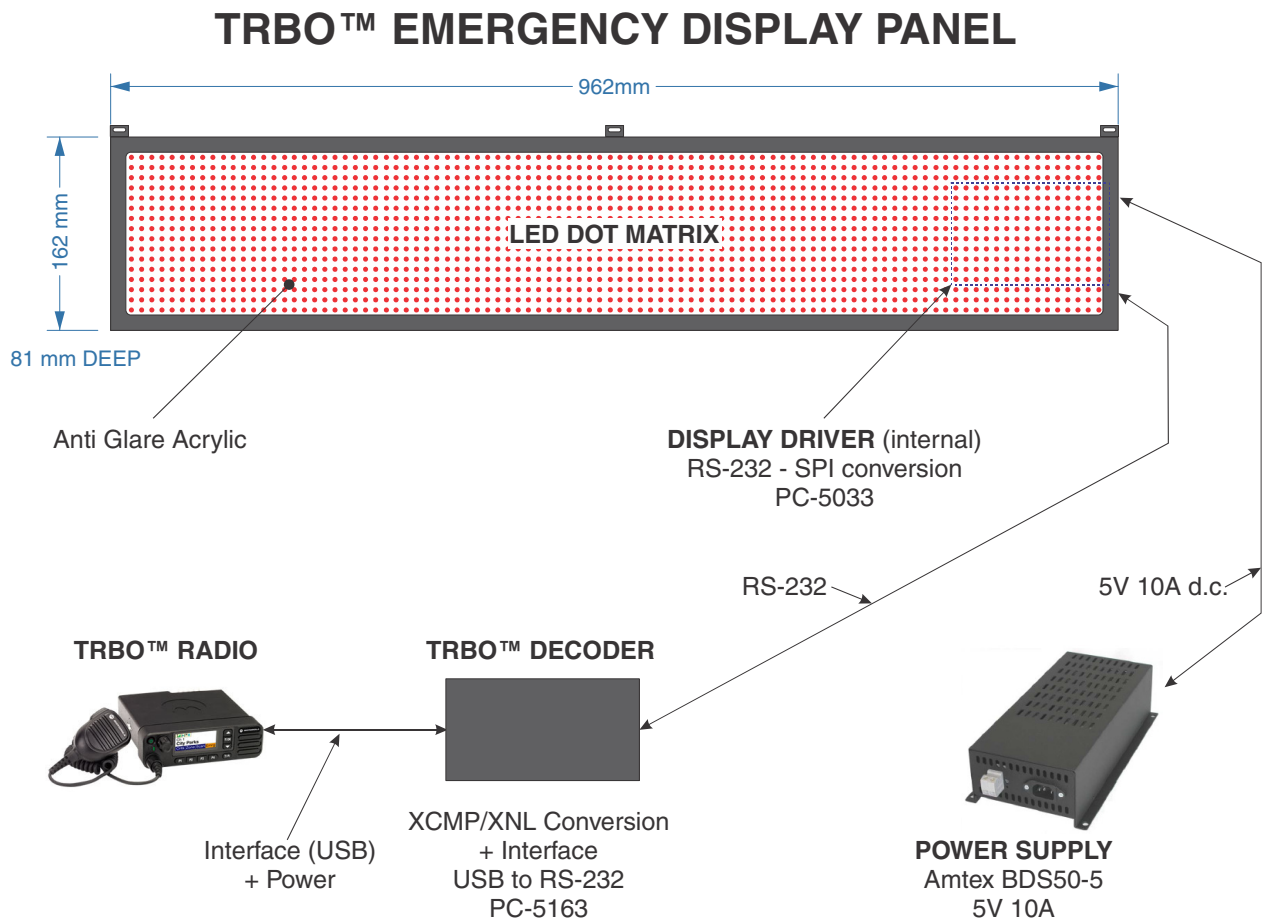
Its purpose is to provide the control station officer with an imposing visual display of all emergencies within the prison facility for immediate action.

The TP-5290 works by monitoring the data on a MOTOTRBO™ DM4601 MAP connector, constantly looking for incoming emergency alarm calls. When an alarm call is received, the radio ID is decoded, paired with its alias contact name, and placed up on the TRBO™PANEL.

The control station officer can then review and clear alarms using the push buttons on the TRBO™PANEL Decoder box.

TRBO™PANEL is not restricted for use within prisons. It can be used at campuses, shopping complexes, public venues, sporting grounds, in fact anyplace where guards carry MOTOTRBO™ radios.

## 1.2 High Level TRBO™PANEL Architecture

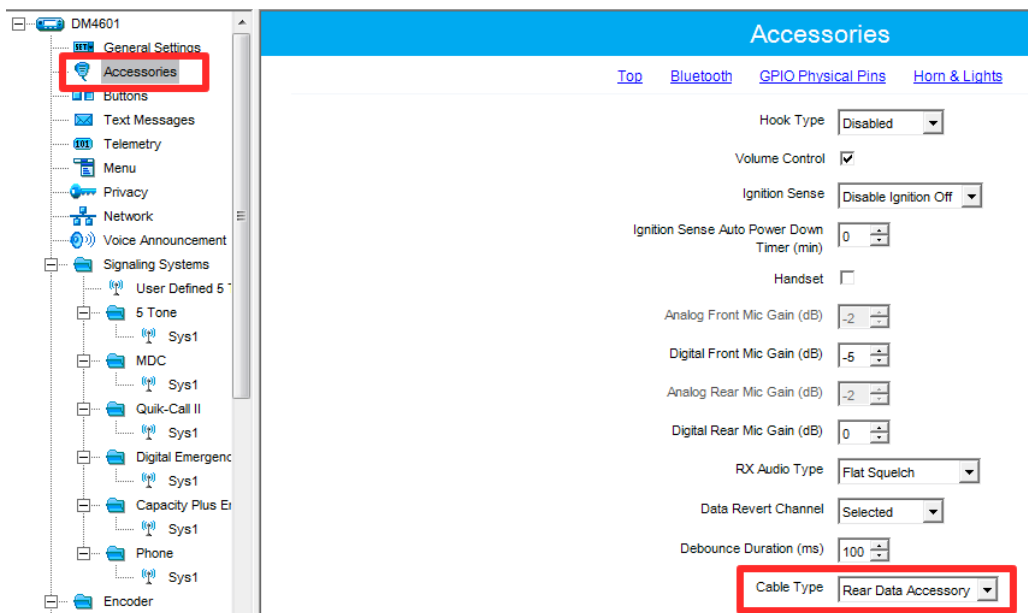


**Figure 1.2.1 – TRBO™PANEL High Level Architecture**

Figure 1.2.1 can be used as a connection diagram.

## 1.2.1 Radio Programming

The Accessories Cable Type needs to be set to “Rear Data Accessory”.



Also in the **CPS** under "Menu" options, set "Menu Hang Time (sec)" to "Infinite", otherwise contact lists may not read properly on power-up and the panel will display "Reading Contacts" indefinitely.



## 1.3 Overview

This document provides User instructions for the TRBO™PANEL interfaced to a MOTOTRBO™ DM4601 base radio with Cable Type set to “Rear Data Accessory”.

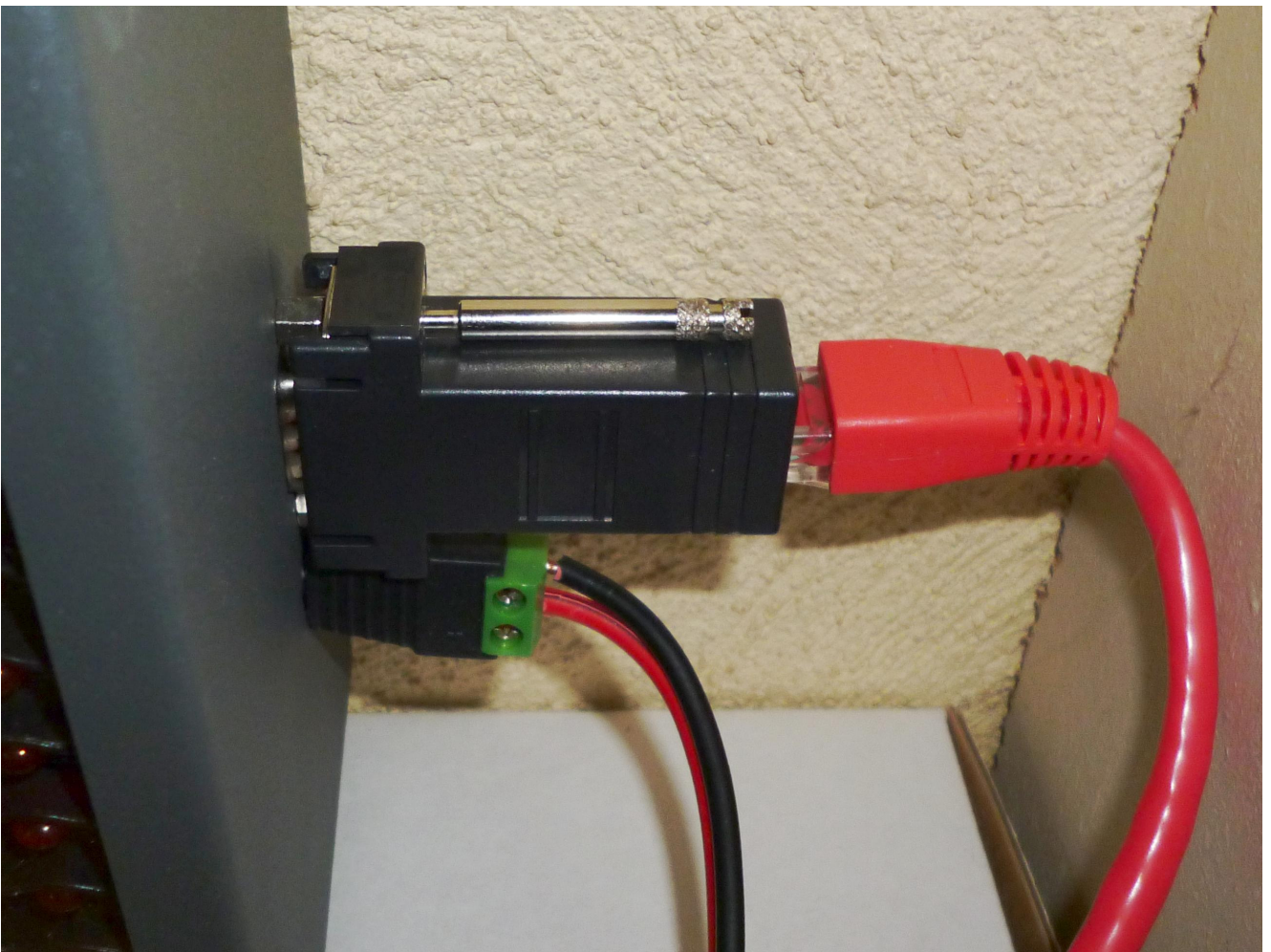
The TRBO™PANEL is simply connected to the TRBO™PANEL Decoder using a standard CAT5 Ethernet patch lead which can be up to 10 metres in length. The TRBO™PANEL Decoder is connected to the DM4601 using the hardwired interface cable with the MAP connector (part number PMLN5072A).

The TRBO™PANEL must be powered by the supplied AMTEX BDS50-5 power supply. This is the approved 5V d.c. 10A supply and must be used to maintain product safety compliance.

## 2. Connections

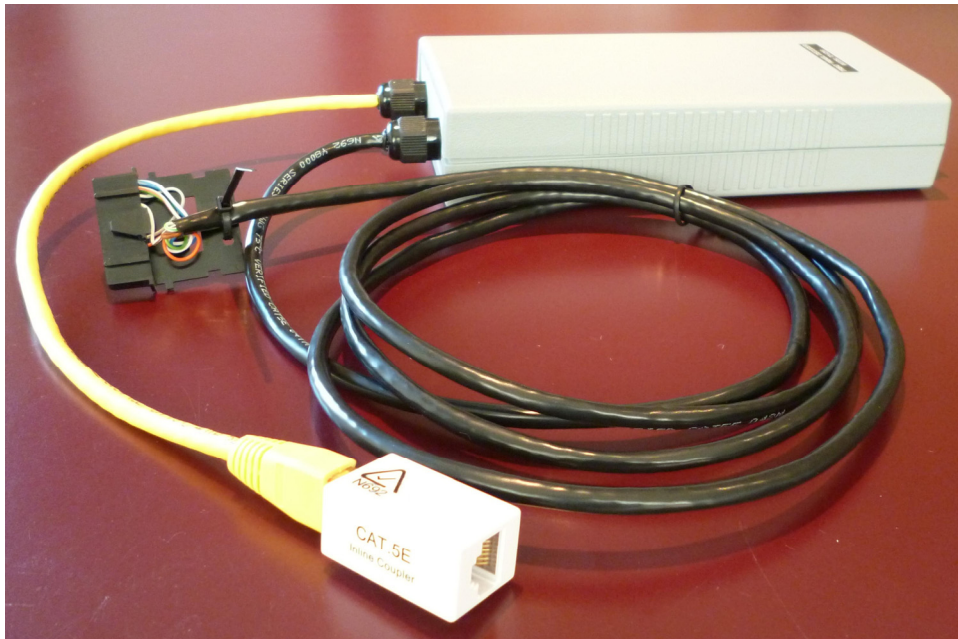
### 2.1.1 Display Panel Connectors

The TRBO™PANEL has a DB9 data connector and a 2.1mm concentric power connector. Supplied are DB9 to RJ45 and 2.1mm concentric to screw terminal adaptors:



## 2.1.2 Decoder Hardwired Leads

TRBO™PANEL Decoder box has a hardwired lead for connection to the radio's MAP connector and an RJ45 joiner for connection to the display panel



## 2.1.3 Power Supply Lead

Supplied as standard is a 3 metre figure 8 power lead with ferruled ends for the AMTEX BDS50-5 power supply end and a screw terminal to 2.1mm concentric plug for the display panel end. You may use longer power cables however 4mm<sup>2</sup> wire is required to keep voltage drop to a minimum. Also supplied is an IEC13 to 3 pin mains lead.



### 3. Connecting and Powering Up

Connect the TRBO™PANEL components together as per the TRBO™PANEL High Level Architecture diagram using the leads and connectors described in the previous section.

**It is imperative to make all connections with the radio and display panel  
DOWN POWERED.**

Once all connections are made, apply power to the AMTEX BDS50-5 power supply. After about seven seconds (with the radio turned off (or a connector not plugged in)) you will see:



Check all connections, turn on the radio and you will briefly see:



TRBO™PANEL will now automatically load all of the radio's contacts:



While the contact read procedure is in progress, please ensure the radio is not used. That is, it should not receive alerts, calls, messages, etc and the radio buttons, knobs and PTT should not be operated. Doing so can interfere with the process and prevent it from completing.

When TRBO™PANEL has finished loading all of the radio's contacts you will briefly see:



The display will now go blank.

## 3.1 TRBO™PANEL is Ready to Receive Emergency Alarm Calls

### 3.1.1 Displaying an Emergency Call

When TRBO™PANEL receives an alarm call you will see the alarm queue position number, the radio ID in hex and the contact name, also known as the alias:



### 3.1.2 Clearing the Emergency Call from the Display

You can clear the emergency call from the display by pressing the Decoder box CLEAR button twice within half a second.



The display will go blank.

### 3.1.3 Displaying Multiple Emergency Calls

TRBO™PANEL will display multiple emergency calls by displaying each emergency in sequence for 2 seconds. You can also press the PREVIOUS and NEXT buttons to scroll back and forth through the emergency queue faster.

This sequence will continue until all of the emergencies have been cleared. You can clear individual emergencies by pressing the CLEAR button twice within half a second while it is on display.

### 3.1.4 Clearing All Emergencies from the Display (Optional)

Press and hold the CLEAR button for more than three seconds. For security reasons this feature is not enabled by default.

### 3.1.5. Dimming the Display Panel

At anytime, simultaneously push all three buttons on the Decoder box and the TRBO™PANEL will display:

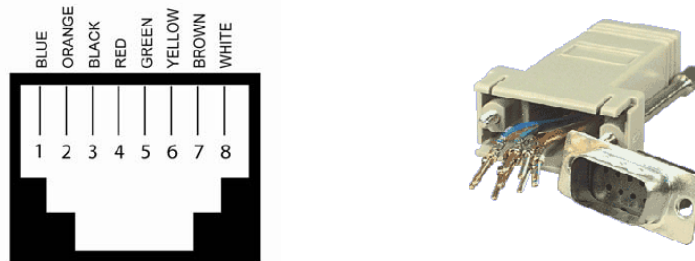
**BRIGHT LEVEL 5**

Press the PREVIOUS button to reduce the brightness or the NEXT button to increase the brightness from 1 to 9. You can then press CLEAR to save and exit or TRBO™PANEL will time-out with the saved setting after 10 seconds. The default brightness is 5.

## 4. Connector Pin-outs and Cable Diagrams

### 4.1 Display Panel RJ45 to DB9 Adaptor

This adaptor allows you to use a standard Cat5e UTP Ethernet patch lead (up to 10 metres) to connect the Display panel to the Decoder box.



RJ45 Pin Number	Conductor Colour	DB9 Pin Number
1	BE	1 (NC)
2	OE	9
3	BK	4 (NC)
4	RD	5
5	GN	3
6	YW	2
7	BN	7
8	WE	8
		6 (NC)

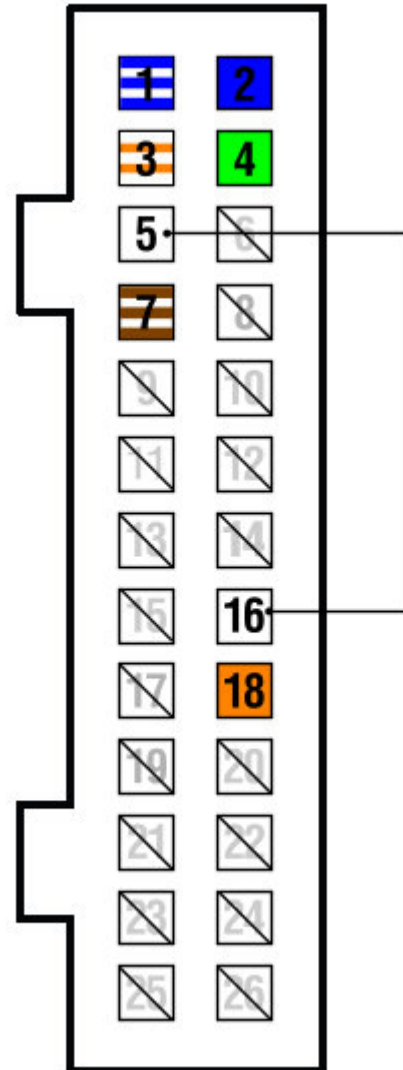
### 4.2 Panel to Decoder Cat5e UTP Ethernet Patch Lead (max. 10 metres)

RJ45 Pin Number	Conductor Colour T568A	Panel RJ45 Signal	Decoder RJ45 Signal	Level/Sensitivity
1	WE/GN	NC	NC	N/A
2	GN	Firmware Update Voltage		VPP 8V
3	WE/OE	NC	NC	N/A
4	BE	Digital Ground	Digital Ground	0VD
5	WE/BE	Rx Data	Tx Data	RS232
6	OE	Tx Data	Rx Data	RS232
7	WE/BN	Firmware Update Clock		Prog. Clock (PGC)
8	BN	Firmware Update Data		Prog. Data (PGD)

### 4.3 Radio MAP Connector Lead (hardwired to Decoder)

**DM4600 Series  
MAP Connector**  
Part number PMLN5072A

MAP Pin Number	Conductor Colour	RJ45 Pin Number	Signal
1	WE/BE	5	D+
2	BE	4	D-
3	WE/OE	3	VBUS
4	GN	2	USB GND
5	Any	-	Cable ID
7	WE/BN	7	SW B+ 12V
16	Same as 5	-	Cable ID
18	OE	6	GND



# 5. Warranty

The TP-5290s are original and brand new, manufactured by Design Two Thousand Pty Ltd to Quality Assurance Standard ISO 9001.

All equipment has a two-year warranty against defects in materials and workmanship from date of delivery.

The Warranty covers:

- Repair or replacement of faulty items returned to Design Two Thousand Pty Ltd.
- Return freight to Motorola, Burwood East, VIC.
- Help Desk telephone support.

The Warranty does not cover:

- On-site repair.
- Equipment subjected to misuse, accidental or lightning damage.
- Radio failure.

## **Failure within the Warranty Period**

- Faulty item(s) are to be returned to Design Two Thousand Pty Ltd.
- Design Two Thousand Pty Ltd will cover return transportation costs to Motorola, Burwood East, VIC.
- Turnaround time at factory is anticipated to be no longer than 48 hours plus transit.
- The consignor is to accept liability for loss or damage during transit.

## **Failure after the Warranty Period**

- Faulty item(s) are to be returned to Design Two Thousand Pty Ltd.
- Turnaround time at factory is anticipated to be no longer than 48 hours plus transit.
- Freight of equipment to and from Design Two Thousand Pty Ltd will be to Motorola's account.
- The consignor is to accept liability for loss or damage during transit.
- The cost of replacement depends on the component in need of replacement. This cost is not to exceed the price of a complete new unit.

## Help Desk

Design Two Thousand Pty Ltd offers a 24-hour, 7-day per week help desk number for Motorola assigned test officers to call. The Help Desk number is:

**+613 9758 5933**

Any return calls are not limited by geographical location, subject to network availability.

The response time to a support request will generally be immediate but shall be no longer than 15 hours.

The Test Officer, as a minimum, shall:

- Be able to identify the product by model and serial number.
- Verify that the TP-5290 set appears to be properly installed and the radio is operational.

After the warranty expires, Design Two Thousand Pty Ltd continues to offer a 24-hour, 7-day help desk number for Motorola test officers to call at nominal charges. The Help Desk number is:

**+613 9758 5933**

Any return calls are not limited by geographical location, subject to network availability.

The response time to a support request will generally be immediate but shall be no longer than 15 hours.

The Test Officer, as a minimum, shall:

- Be able to identify the product by model and serial number.
- Verify that the TP-5290 set appears to be properly installed and the radio is operational.

After the warranty has expired, Design 2000 will continue to support the product for at least ten years.





## 6. Specifications

Data Communications	USB, RS232 (38,400 baud, N81 format) and SPI
Radio Protocol	XCMP/XNL
Processors	PIC 18LF4520 (Panel) PIC 32MX795F512L (Decoder)
Firmware Storage Medium	Non-volatile
Display LEDs	5mm red LEDs 16 x 96
Power Consumption	< 50 Watts with all LEDs lit
Power Supply	AMTEX BDS50-5 5V d.c. 10A
Display Enclosure Material	1mm zinc coated mild steel
Finish	Dulux Mannex Racking Grey 901-84225 powder coat
Display Enclosure Dimensions	162 x 962 x 81 mm
Operating Temperature Range	-10 → 60 ° C
Storage Temperature Range	-20 → 80 ° C ambient
Humidity, Storage and Operating	To 98% non condensing
Mean Time Between Failure:	> 20 years
Compliance	Safety: AS/NZS 60950 EMC: AS/NZS CISPR 22:2009
ACMA Supplier Code Number	N468
ERAC Responsible Supplier No.	E1287
Warranty	Two years
Part Numbers	TRBO™ PANEL TRBO™ PANEL DECODER Approved Power Supply
TP-5290	
TD-5290	
AMTEX BDS50-5	

ACMA SUPPLIER CODE: **N468**



ERAC RESPONSIBLE SUPPLIER No.: **E1287**