



## Fixed Station Terminal - DT-5365 Series

**ASTRO® 25**  
APCO Project 25 Phase 2 Compliant

### Installation & Service Handbook

Item 1 of List of Deliverables **ATION TERMINAL**  
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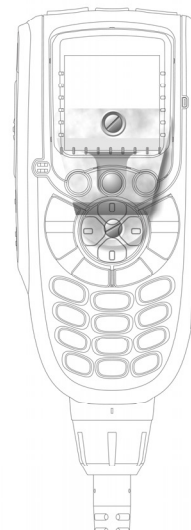
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# FIXED STATION TERMINAL DT-5365

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## Assumptions

This document assumes that qualified installers and maintenance technicians perform the installation and maintenance procedures and are therefore aware of basic wiring and installation 'Industry Best Practices'.

The Occupational Health & Safety of all personnel working on or near this equipment is the responsibility of the installer or technician performing the tests, or operations.

## Warning

This equipment may contain lethal voltages, and must be isolated from the mains electricity supply before any cover is removed.

## Warranty

The Fixed Station Terminal Units have a Two Year Warranty against defects in Materials and Workmanship.

If problems are experienced with the installation or operation of the Fixed Station Terminal Unit please call the Help Desk Number listed below before returning units to the factory for repair.

In many cases, problems can be diagnosed and rectified over the phone, avoiding unnecessary transportation and service costs.

**HELP DESK 03 9758 5933 (All Hours)**

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# 1 FUNCTIONAL DESCRIPTION



Figure 1: DT-5365 Front

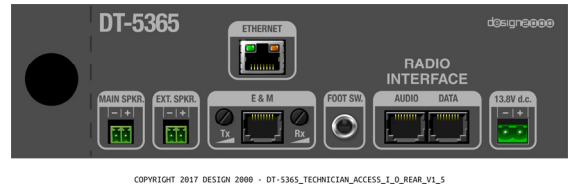


Figure 2: DT-5365 Rear

## 1.1 GENERAL FEATURES

The Victorian SES Fixed Station Terminal is a desktop APX2500, APX4500, APX6500, APX7500, or APX 8500 Mobile Radio Console for use in an office environment or temporary location.

The Fixed Station Terminal is powered by the Standard VIC SES Radio Power Supply arrangement. The DT-5365 has the capability to:

- Operate from a 12V d.c. nominal Supply and/or Rechargeable battery
- Power an external 5W nom., 4-8 Ohm passive PA speaker (volume control knob on front)
- Provide an E&M interface for an external mic/spkr or CCGW (Tx/Rx) arrangement
- Interface an external desk microphone or
- Interface an external wireless microphone
- Interface an external lightweight headset/microphone or
- Interface an external earphone (Smartphone style earbuds/mic)
- Interface an external PTT foot pedal
- Drive a main speaker (volume control knob on front)

These interfaces meet telecommunications network connection safety and level requirements (AS/NZS 60950 and ACMA TS 006 Clause 5.2.2 (a)). The Fixed Station Terminal Interface audio break-outs are buffered to allow operation of all facilities simultaneously. Preset volume controls for the E&M Interface are accessible via recessed, screwdriver adjustable, controls located on the rear panel. Receive volume for the earphone/headset, main speaker and extension speaker are controlled by the knobs on the front panel of the Operator Control Panel Box.



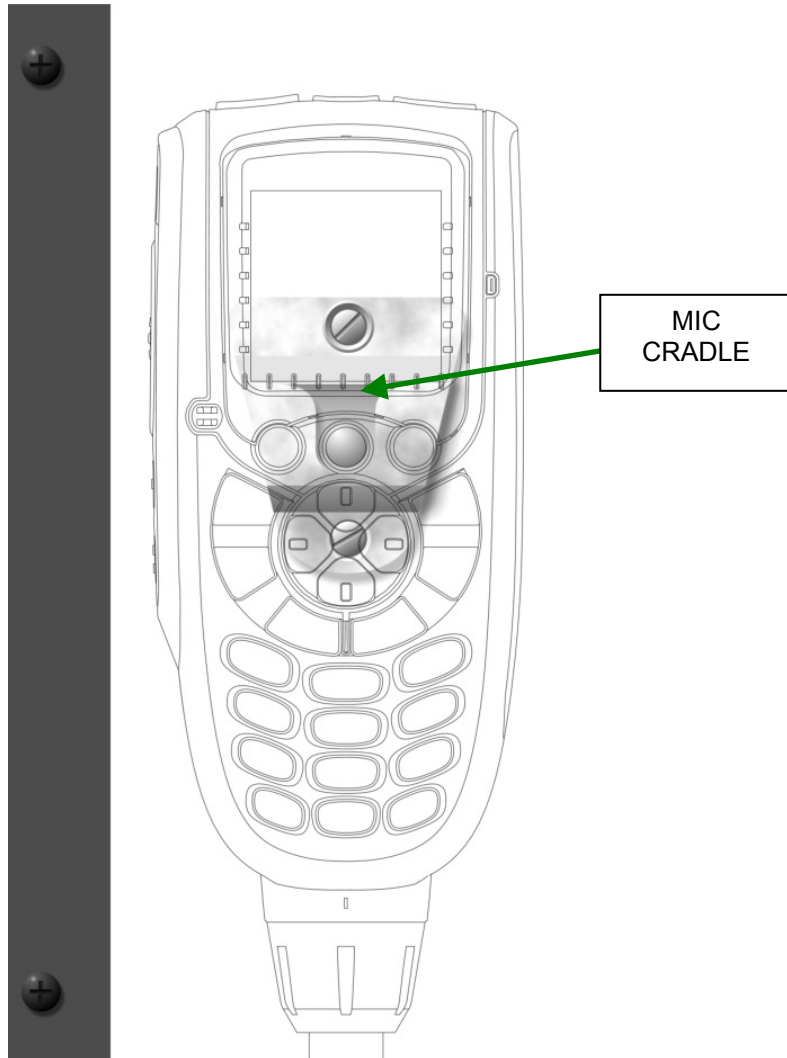
### 1.1.1 Operating Conditions

The Fixed Station Terminal operates under the following physical conditions:

<b>Power source:</b>	13.8V d.c. (12V d.c. nominal).	
<b>Nominal output current rating:</b>	Continuous	5.0 Amps @ 13.8V d.c.
	20 Minutes @ 20% duty cycle	7.5 Amps @ 13.8V d.c.
<b>Temperature:</b>	Ambient temperature range -10°C to 70°C with a relative humidity of 0 to 90% non-condensing while mounted in the cabinet.	

### 1.1.2 Microphone Cradles

The DT-5365 has a microphone cradle supplied which is mounted on the melamine laminated MDF cabinet on the right hand side of the SES Faceplate.



## 2 HOUSING CONCEPT

There are two variants (at this time) of the VIC SES faceplate. The physical construction consists of a melamine laminated timber cabinet that holds the Faceplate, Operator Control Panel Box (FP-5365 version), APX Mobile radio, mic cradle (and antenna connector which is on the back of the APX radio). The FP-5365P does not contain the Operator Control Panel Box.

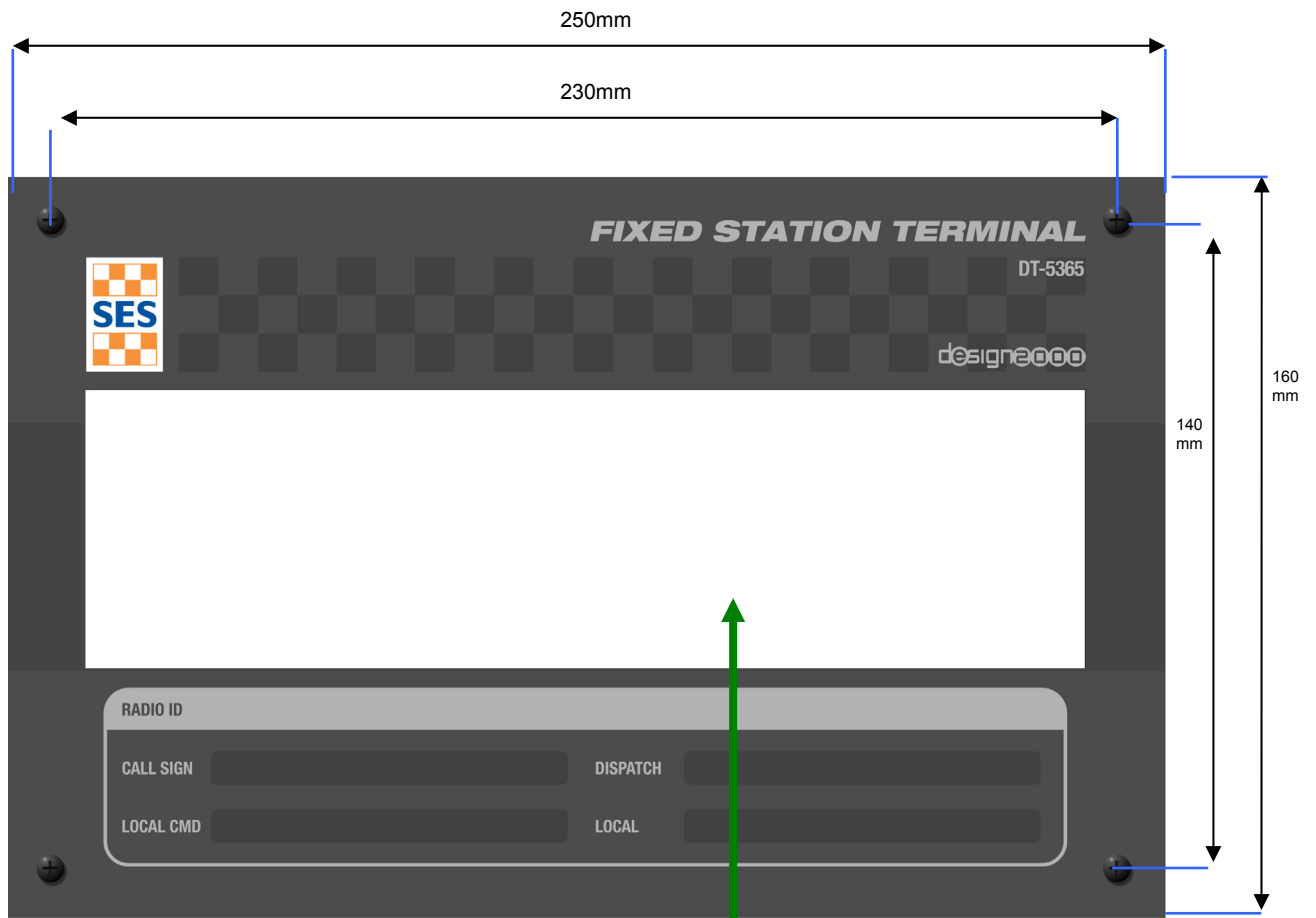
### 2.1 Fixed Station Terminal melamine laminated MDF cabinet





## 2.2 Fixed Station Terminal DT-5365

This version includes the Operator Control Panel Box DT-5365 mounted in the Faceplate FP-5365



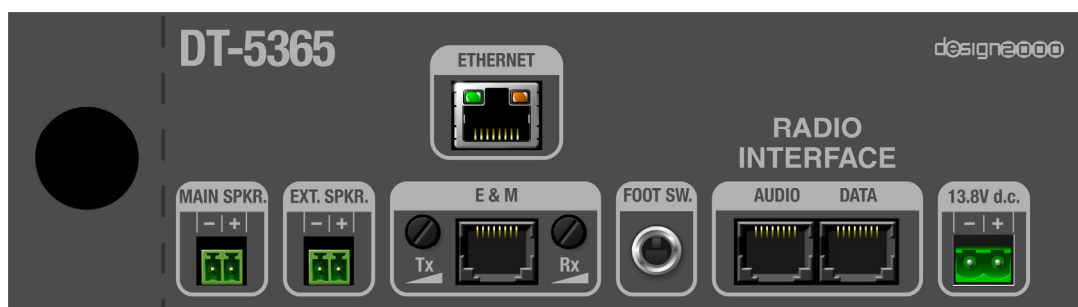
Faceplate FP-5365 dimensions are 250mm wide by 160mm high. 4 mm diameter screw hole centres are inset by 10mm from each edge. This fits the standard VIC SES cabinet cut-out.

The Operator Control Panel box is fixed to the Faceplate using the brackets and screws supplied.



**DT-5365 Front**  
70mm x 210mm x 130mm (H x W x D)





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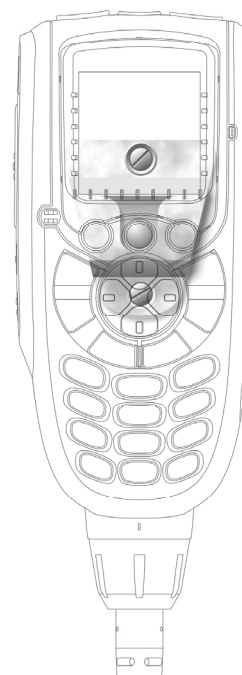
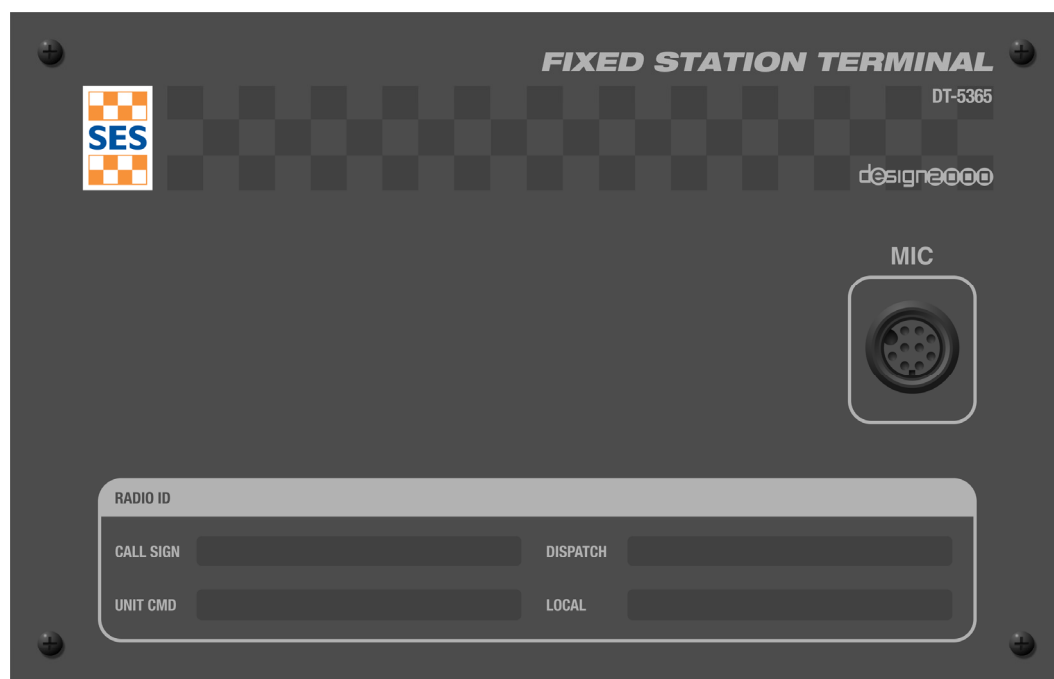
### DT-5365 Rear

70mm x 210mm x 130mm (H x W x D)

The height of the Operator Control Panel box DT-5365 is 70mm, the width is 210mm and the depth is 130mm.

## 2.3 Fixed Station Terminal DT-5365P

This version has a plain Faceplate FP-5365P with no Operator Control Panel Box. The controller mic socket and cradle is included.



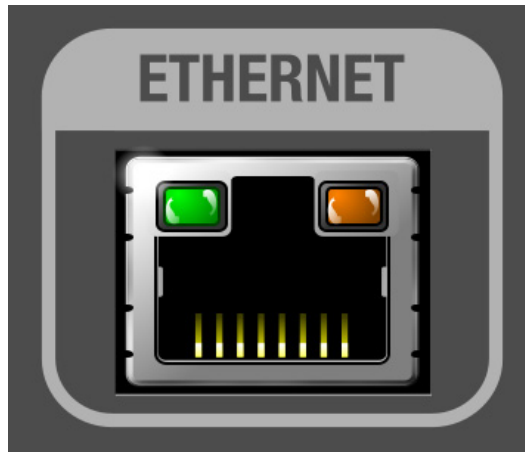
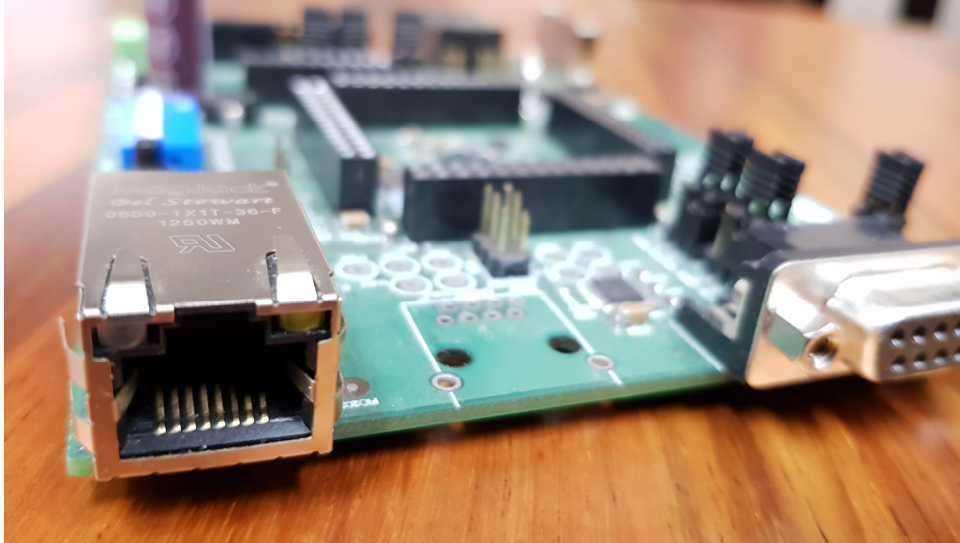
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Faceplate FP-5365 dimensions are 250mm wide by 160mm high. 4 mm diameter screw hole centres are inset by 10mm from each edge. This fits the standard VIC SES cabinet cut-out.



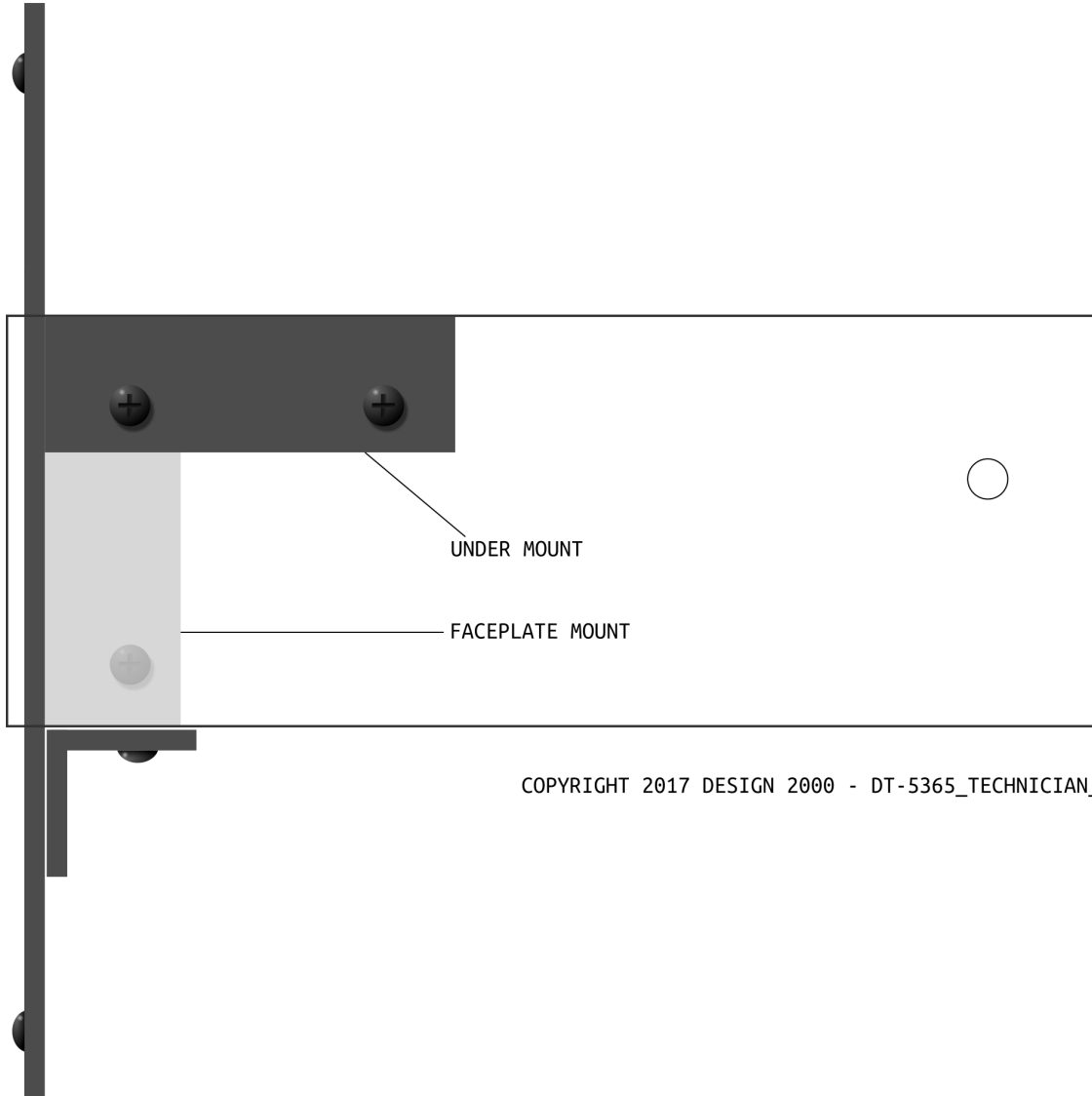
## 2.4 Optional Ethernet Controller Module

Enabling remote management of the device including viewing of interface status and other Motorola direct API data such as radio status on network, radio ID, current channel and other parameters. This module can be fitted to the DT-5365.



## 2.5 Mounting Brackets

**Mounting Bracket Set** (for Faceplate or Under-Shelf) - Powder Coated in Racking Grey supplied with Black M4 threaded mounting screws. These are dual purpose brackets for mounting the DT-5365 Operator Control Panel Box on the FP-5365 Faceplate or under a shelf / desk.



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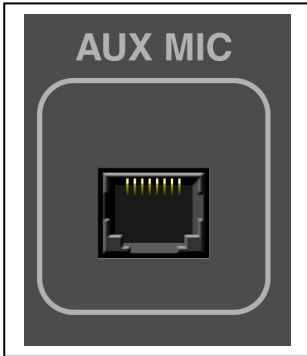


### 3 INTERFACE PIN-OUTS

#### FRONT PANEL

##### 3.1 AUX MIC INPUT (RJ45)

For Motorola RMN5068A or HMN3000B-4273 Desktop Microphone, OR Pacific Wireless X10DR.



Pin Number	Description	Level / Sensitivity
1	Power	12V d.c. nom. 60mA
2	Emergency output to radio	Active switched to Ground
3	Rx audio from radio	Line level
4	Tx audio to radio	90mV RMS nom.
5	Mic audio Ground	0V
6	Channel Activity from Radio	Unmute switched to Ground
7	Ext PTT to radio	Switched to Ground
8	Talkaround audio bus	Fixed line level

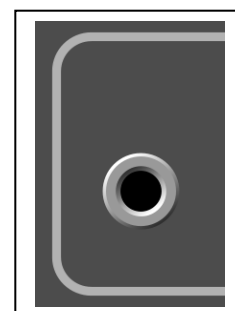


### 3.2 EARPHONE (3.5mm Four Pole)

For iPhone or Samsung Smartphone Earbuds with mic



Pin Number	Description	Level / Sensitivity
1 (mic)	Mic Tx audio	-34dBm nom., 5.6V bias
2 (sleeve)	Ground	0V
3 (ring)	Right Rx audio	-10dBm nom. User adjustable Rx Level
4 (tip)	Left Rx audio	“ “ “ “

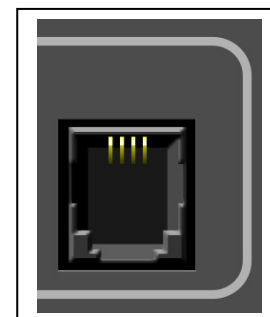


### 3.3 HEADSET (RJ9 also correctly called RJ22)

For Plantronics HW251N or H141N Headset



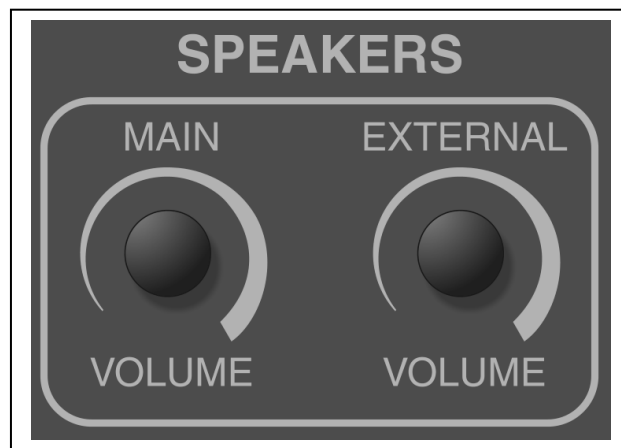
Pin Number	Description	Level / Sensitivity
1	Speaker +	Speaker drive -10dBm nom. (User adjustable Rx level)
2	Microphone -	Microphone return
3	Microphone +	-34dBm nom., 5.6V bias
4	Speaker -	Speaker return



User adjustable earphone / headset volume control



### 3.4 SPEAKER VOLUME CONTROLS



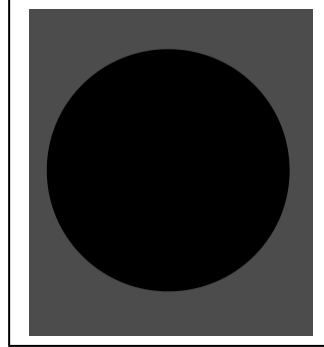
The MAIN VOLUME Control adjusts the main speaker in the FST cabinet. The EXTERNAL VOLUME Control adjusts a passive external PA speaker.



## **REAR PANEL**

### **3.5 MIC CABLE HOLE**

This is for the Motorola PMLN4958-03 Control Head extension cable for the Controller Mic.



Mic extension cable pass-through hole



### 3.6 MAIN SPEAKER

#### Dinkle® Mini Pluggable Screw/Clamp Terminal

For connecting the main unpowered internal speaker (eg. 5W nom., 4 - 8 Ohm).

Pin Number	Description	Level / Sensitivity
1	Speaker -	
2	Speaker +	5W nom., 4-8 Ohm

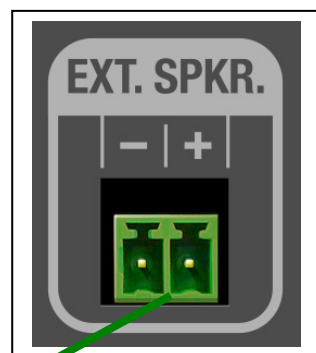


### 3.7 EXTENSION SPEAKER

#### Dinkle® Mini Pluggable Screw/Clamp Terminal

For connecting an optional unpowered external speaker (eg. 5W nom., 4 - 8 Ohm).

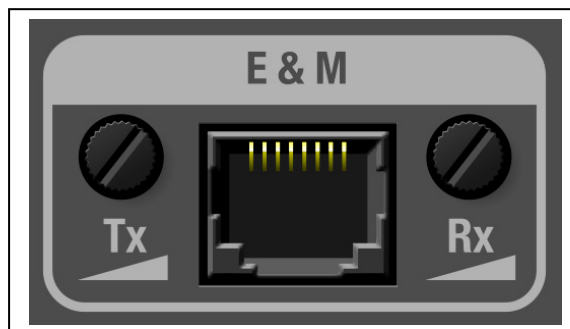
Pin Number	Description	Level / Sensitivity
1	Speaker -	
2	Speaker +	5W nom., 4-8 Ohm



### 3.8 E&M INTERFACE (RJ45)

E&M (Earth & magneto, ear & mouth, or receive and transmit) signaling provides the means to remotely signal and control the radio as well as provide external two-way audio. The E&M Interface has PTT in, Channel Activity out and 600Ω balanced Tx and Rx audio - suitable for connection to, say, a Motorola MCC7500 VPM Console, an audio bridge, a telephone interconnect unit, a Conventional Channel Gateway (CCGW) or Audio Management Unit. (AMU).

Pin-outs are shown with respect to the DT-5365.



Pin Number	Description	Level / Sensitivity
1	PTT IN to FST radio J2 Aux PTT input	Relay normally open
2	PTT IN to FST radio J2 Aux PTT input	Relay common
3	Audio IN to FST radio J2 Accessory connector. Audio received from the remote equipment and transmitted to operators listening to the RadioStar FST	Rx audio + (-10dBm nom.)
4	Audio OUT return	Tx Audio -
5	Audio OUT from FST radio J2 Accessory connector. Audio transmitted to the remote equipment and received by the operators listening to the remote equipment	Tx audio + (-10dBm nom.)
6	Audio IN return	Rx audio -
7	Channel Activity OUT from FST radio J2	Relay normally open or normally closed (Strappable for active high or active low)
8	Channel Activity OUT from FST radio J2	Relay common



### 3.9 PTT FOOTSWITCH (6.35mm Mono Jack)

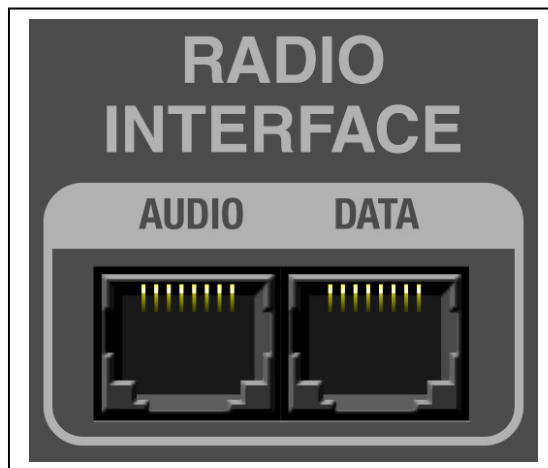
For Footswitch DS2700 fitted with 2m cable and ¼” TS jack.



Pin Number	Description	Level / Sensitivity
Tip	Normally Open	Shorted to sleeve to activate PTT
Sleeve	Common	



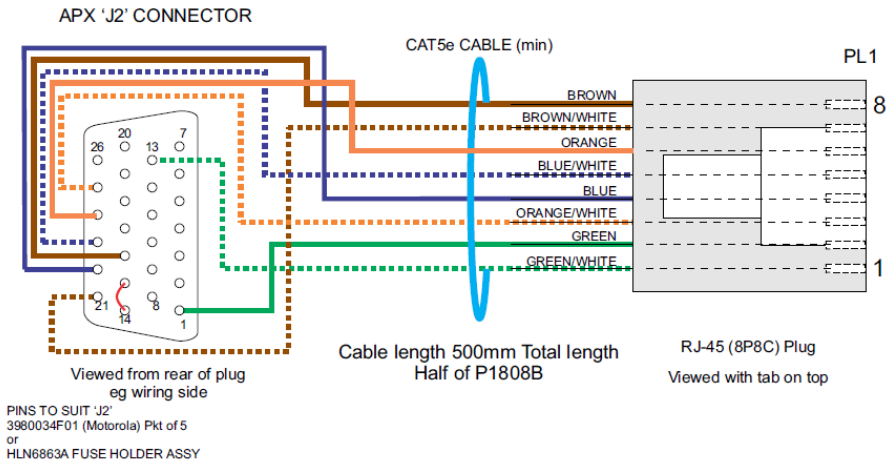
### 3.10 RADIO INTERFACE TO APX RADIO J2 CONNECTOR



See next page for pin-out details.



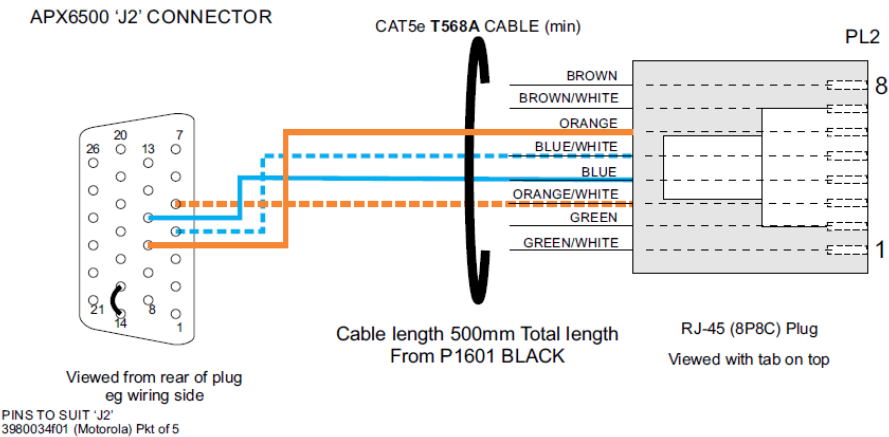
## AUDIO CABLE PIN-OUTS



### CABLE PIN-OUTS

MOTOROLA APX 'J2' PIN	DESCRIPTION	PC-5365 PL1 PIN	
13	CHANNEL ACTIVITY	1	GREEN/WHITE
1	GROUND	2	GREEN
25	IGNITION SENSE	3	ORANGE/WHITE
22	MONITOR	4	BLUE
23	AUX MIC IN	5	BLUE/WHITE
24	SW_B+	6	ORANGE
21	RX FILTERED AUDIO	7	BROWN/WHITE
16	PTT	8	BROWN

## DATA CABLE PIN-OUTS



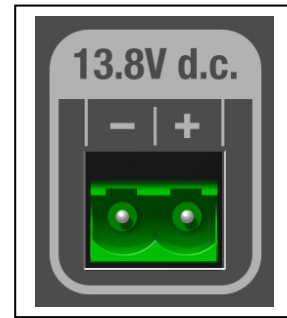
MOTOROLA APX6500 'J2' PIN	DESCRIPTION	PC-5271 SHT 11 PL2 to SK105 PIN	
	NC	1	GREEN/WHITE
	NC	2	GREEN
5	DCE_RXD	3	ORANGE/WHITE
11	DCE_CTS	4	BLUE
4	DCE_TXD	5	BLUE/WHITE
10	DCE_RTS	6	ORANGE
	NC	7	BROWN/WHITE
	NC	8	BROWN
14	LOOP TO 15 (EMERG) (TO REMAIN)		



### 3.11 POWER INPUT

This is the power input sourced from the VIC SES standard Power Supply Arrangement.

Pin Number	Description	Level / Sensitivity
1	-ve Return	Return
2	+12V d.c. nom.	Power



### 3.12 ETHERNET CONTROLLER PORT (OPTIONAL)

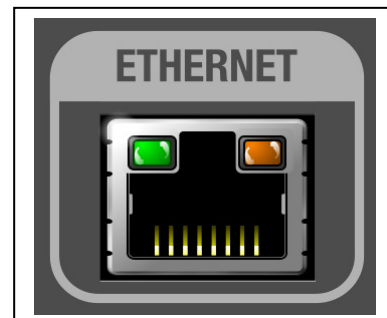
#### RJ45 MagJack

The Ethernet jack is an IP Interface that provides an internal Web page (or Home page) for the configuration of the DT-5365.

Also on the web page, on a per application basis, custom buttons can be made available to send, say, a Status message across the P25 radio network to another radio. The construction of custom buttons is not made available to any third party and is subject to an APX ADK License Agreement on a per project basis.

As another example, the DT-5365's IP Interface could regularly check an email account (SMTP) for mail containing a phrase or password in the title, then take action based on the body text of that email (eg. "ALERT RADIO 1234").

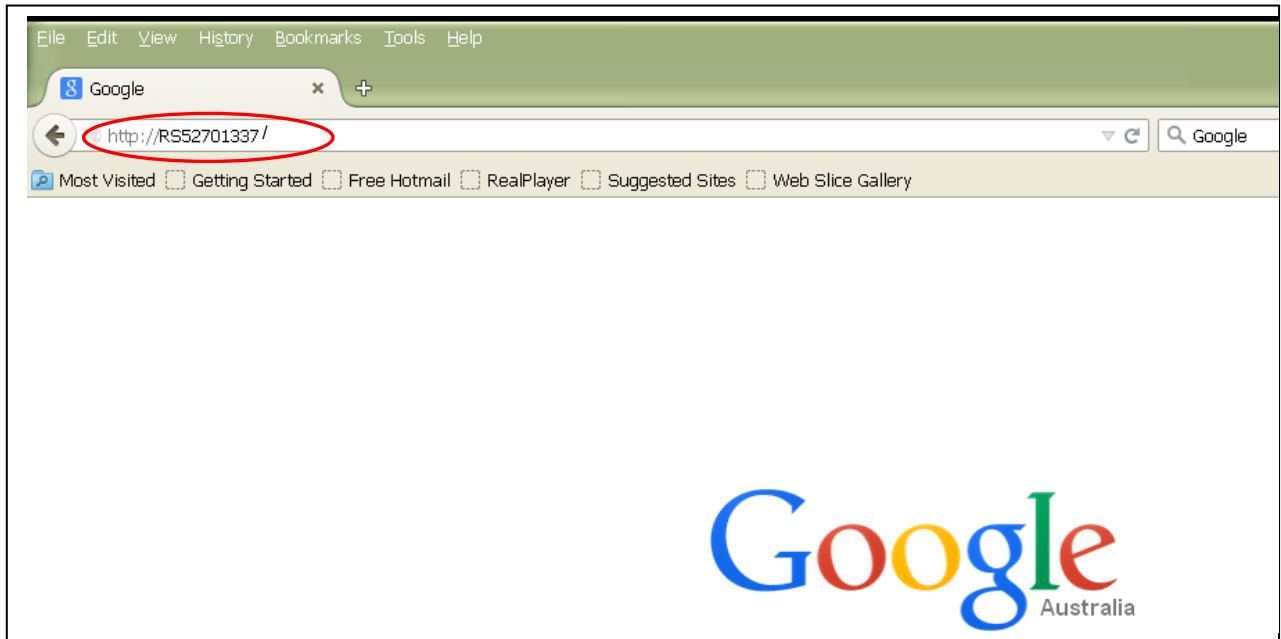
Pin Number	Description	Level / Sensitivity
1	Transmit Data	TXD+
2	Transmit Data	TXD-
3	Receive Data	RXD+
4		
5		
6	Receive Data	RXD-
7		
8		



#### Network Connection

Connect the DT-5365's Ethernet jack to a spare LAN port on the Router or Switch using a standard CAT5, CAT5e or CAT6 network patch cable. Wait a minute or so for the Router to lease an IP address to the DT-5365 which defaults to DHCP. Open your Browser and type the DT-5365's serial number (it's on the back of the DT-5365) into the address bar, eg. <http://RS52701337/> (include the RS and / ):





Press ENTER and this should bring up the Home page (example only is shown):



**Note that your Browser may do a Google search and not find the DT-5365. Contact your Network administrator for instructions on how to do a local search.**



## 4 EMC COMPATIBILITY

The Motorola APX Mobile Terminal and DT-5365 Control Box meets the requirements of AS/ANZ 3548-1995, EN55022 (CISPR22), GB9254 Class B, EN55014, EN61000-3-2,-3 and for immunity EN61000-4-2,3,4,5,6,8,11, EN61000-6-2 (EN50082-2), heavy industry level, criteria A.



## 4 INSTALLATION: GENERAL

The relevant subsections & Installation check sheet for FST installation are covered in other Motorola documentation. Please consult your Fixed Station Terminal Manager as required.

### 4.1 Aesthetics

Check that the equipment has no marks or damage that detracts from the equipment and appearance of the installation. More substantial marks and damage may affect equipment performance. An example of which may be a cracked case or damaged controller microphone inhibiting the function of the push buttons.





### Appendix A - Feature Sets

FEATURE	DT-5365	DT-5365P	



**Appendix B - Circuit Diagram - Hierarchy Schematic**



**Appendix C - Circuit Diagram - Audio, E&M Schematic**



**Appendix D - Circuit Diagram – Amplifiers Schematic**



**Appendix E - Circuit Diagram – Sub-board Schematic**



**Appendix F - Circuit Diagram – Power Supply Schematic**

