

TMD

...the *power* in microwaves!

RUGGED AMPLIFIERS  
& TRANSMITTERS



product summary

# RUGGED AMPLIFIERS & TRANSMITTERS

[www.tmd.co.uk](http://www.tmd.co.uk)  
[www.tmdus.com](http://www.tmdus.com)

# RUGGED AMPLIFIERS & TRANSMITTERS

FOR RADAR, EW AND COMMUNICATIONS APPLICATIONS

## What do we mean by rugged amplifiers?

**Rugged:** Strong, Sturdy, Robust And MIL Spec.

**Amplifier:** Microwave Tube Combined With A Power Supply And Control Electronics.

**Transmitter:** As Above – But More So – The Complete Package!

TMD's amplifier product line came alive after we began developing power supplies at the end of the 1980s, and this together with our understanding of microwave tubes and the complexities of their integration, has resulted in a thriving business.

We have since designed, developed and produced numerous subsystem products for land, air and naval operations, which have gained TMD an international reputation for unmatched performance, excellent reliability and outstanding support. Product development is driven by system technology and is customised to meet specific platform needs; often for very technically challenging specifications. As the name suggests, the products in this range are designed for harsh environments in terms of vibration, shock, and temperature extremes, and are fully ESS tested before shipment.



Pictured above: S Band Power Amplifier Module

Pictured right: High Voltage Testing

Cover Image: Ground Mobile Radar. Courtesy RCCS

Various configurations are possible, according to customers' individual requirements; tube and power supply supplied separately; mounted on a base plate or supplied as a fully integrated rack-mountable unit, including cooling fan, built in test facilities and other electronics as required.

Applications are wide ranging including: battlefield surveillance for air defence, search and rescue, air traffic control and EW/ECM deception and jamming. Thus, it follows that many TMD products are involved in life-saving operations around the world. A quote from a pilot on a marine rescue mission "the radar was key; without it the chance of finding the survivor would have been small".

In the last few years we have won several large production contracts for defence radar, on the strength of the technical excellence of our products; however our manufacturing facility is flexible, and we are also able to tackle new developments for small quantities.

The following table shows a selection of generic products we have produced, in this range but don't worry if you can't see exactly what you are looking for - custom solutions are available and our Business Development Team is always eager to discuss TMD's contribution to new technology areas.

**For more details of TMD's products and capabilities, please go to [www.tmd.co.uk](http://www.tmd.co.uk) .**

### After sales support

At TMD relationships with our customers do not end when an order is placed. We pride ourselves in our after sales support, through delivery, set up and user testing. We also offer a comprehensive repairs service for our own or other companies' microwave products; contact us at [wecare@tmd.co.uk](mailto:wecare@tmd.co.uk) for an evaluation.

TMD is approved to the rigorous Quality Standard BS EN ISO9001:2008. Quality is at the heart of everything we do.

**Special products can be designed to customers' specific requirements.**

### DID YOU KNOW?

TMD's rugged amplifiers have an award winning reputation for incredibly high fidelity and world class long mean time between failure - In fact, in air frames our units are fit and forget!



# RUGGED AMPLIFIERS & TRANSMITTERS

Please note - these are generic types only – many other variants are available to order

Type Number	Frequency Range GHz	Output Power W (RF)	Gain dB	Duty Cycle %	Pulse Length us	Prime Power	Tube/Gun Type	Cooling	Size LxWxH (mm)	Weight (kg)	Appli-cation	Special Features
<b>19" Rack Format Transmitter Subsystems</b>												
PTX7518	8.4-9.45	3500	47	10	100	115 VAC, 3-Ph, 400 Hz	Grid TWT	Integ FA	610x483x178	45	R	Integral dummy load, long pulse
PTX7472	8.8-10.0	3600	65	10	50	115 VAC, 3-Ph, 400 Hz	Grid TWT	Integ FA	508x483x178	30	R	
PTX7468	9.0-9.5	8000	60	5	50	115 VAC, 3-Ph, 400 Hz	Grid TWT	Integ FA	508x483x178	30	R	
PTX7547	9.0-9.5	8000	53	2	30	115 VAC, 3-Ph, 400 Hz	Grid TWT	Integ FA	480x483x178	25	R	Includes duplexer and LNA
PTX7437	9.0-9.5	8000	60	2	20	115 VAC, 3-Ph, 400 Hz	Grid TWT	Integ FA	355x430x155	20	R	Compact Size
PTX7481	9.7-9.9	3600	46	10	50	110 VAC, 1-Ph, 60 Hz	Grid TWT	Integ FA	508x483x178	25	R	Single phase input
<b>Special Outline Transmitter Subsystems</b>												
PTX7449/1	2.5-8.0	1000	40	6	15	28 VDC	Grid TWT	Integ FA	575x355x220	25	R	
PTX7602/1	2.75-3.05	50000	77	2.4	200 ns to 30 us	440 VAC, 3-Ph, 50/60 Hz	Grid TWT	Integ FA	1200 x600x1600	500	R	Air Traffic Control/ Naval
PTX7948	3.1-3.4	11000	50	4.5	20 us	115 VAC, 3-Ph, 400 Hz	Gridded TWT	FA	630x480x195	35	R	Very low noise
PTX7443	3.1-3.5	900	40	15.5	25	115 VAC, 3-Ph, 400 Hz	Grid TWT	FA	500x380x175	20	R	
PTX7514	5.8-6.7	350	55	CW	-	100 VDC	Diode TWT	Cond'n	450x270x106	11	C	Low noise
PTX7486	8.0-18.0	200	33	CW	-	115 VAC, 3-Ph, 400 Hz	Grid TWT	Liquid	520x220x145	27	EW	Naval
PTX7485	8.0-18.0	1000	50	4	50	115 VAC, 3-Ph, 400 Hz	Grid TWT	Liquid	520x220x145	27	EW	Naval
PTX7981	9.0-9.5	8000	60	5	200 ns to 100 us	115 VAC, 3-Ph, 4-wire line-neutral, 400 Hz	Grid or Helix TWT	FA	560x380x210	30	R	Very low noise
PTX7451	9.0-9.5	50000	45	3	100	115 VAC, 3-Ph, 400 Hz	Grid EIK/ CCTWT	Liquid	508x483x254	45	R	
PTX7526	9.2-10.0	3500	50	4	20	28 VDC	Grid TWT	Cond'n	400x400x125	18	R	Small outline
PTX7550	Ku band	400	33	25	2.5	57 VDC	Grid TWT	Cond'n	220x195x80	5.1	EW	Fast warm

EW - Electronic Warfare; R - Radar; C - Communications; FA - Forced Air; FE - Focus Electrode; DR - Drone



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<b>Modular Amplifiers (separate HVPSU &amp; TWT)</b>												
PTX7681	X band	4000	45	10	50	270 VDC	Grid TWT	Cond'n	390x260x103	13	R	
PTX7722	9.0-10.0	4000	40	10	150	115 VAC, 3-Ph, 400 Hz	Grid TWT	Cond'n	440x270x120	18	R	Very low noise
PTX7874	9.5-10.0	8000	45	25	50	115 VAC, 3-Ph, 400 Hz	Grid TWT	Cond'n	360x250x103	13	R	low noise
PTX7436	9.5-10.0	8000	60	2	25	115 VAC, 3-Ph, 400 Hz	Grid TWT	Cond'n	360x250x103	12	R	
PTX7541	Ku	2000	60	2	40	115 VAC, 3-Ph, 400 Hz	Grid TWT	Cond'n	360x250x103	12	R	

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## RUGGED AMPLIFIERS & TRANSMITTERS - ACCESSORIES

TMD is also able to provide control boxes and filters according to customers' requirements.

<b>Control Boxes</b>	
Custom control boxes can be provided for many of TMD PTX MPMs and rugged amplifiers (Datasheet EVD6106 describes the range)	
<b>EMI Filters</b>	
PTF6483	Designed to operate with PTM6482 power supply, meeting the emissions requirements of MIL-STD-461E
PTF6959	Designed to supplement the input filter already fitted within the PTM6688 and PTM6559 series high voltage power supplies meeting the emissions requirements of MIL-STD-461E

“the radar was key; without it the chance of finding the survivor would have been small”.

Picture courtesy Chilean Navy





TMD's sophisticated encapsulation techniques prevent high voltage breakdown and protect components against shock, vibration, humidity and altitude

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