

**4-way tap TLT-4-20+/I**

**Features:**

- Cenelec Class A screening effectiveness
- IngressSafe® and ModemSafe® secured
- High port-port isolation performance
- Horizontal in- and output connections while the tap ports are top sided
- C-strap accepts 0.51-1.30 mm test gauges
- Robust zinc die-cast housing with NiSn plating
- Tongue and groove epoxy sealed back cover



**Description**

The TLT-series have been specially developed to meet the needs of the Cable Operator. It is a complete series of 2-, 4-, 8- and 16-way models with cascadable horizontal input and output connections while the ports are aligned along the top. Some models are available in a terminated variety which have no output port and therefore have a lower loss. The TLT housing is robust and features an easy-to-install design with an epoxy sealed tongue and groove back cover. The plating on the zinc die-cast housing is either nickel or nickel-tin (NiSn) depending on the TLT model. Extensive worldwide research has shown that NiSn is the best plating material for products used in the CATV networks. The most important feature is the prevention against Common Path Distortion (CPD).

The material of the F-connector inner spring is phosphor bronze or beryllium copper with tin or silver plating - dependant on the housing plating (zinc/tin, NiSn/silver plating). The F-connector inner spring has been designed specially for connecting coaxial cables with an inner conductor of 0.56 to 1.30 mm, even when varying thicknesses are connected in succession. The TLT-xx-xx+ series have, compared to the basic series, an improved port loss and isolation performance combined with an NiSn plating. ModemSafe® technology is found in all the TLT ranges, and in addition, the TLT-xx-xx+/I series features IngressSafe® circuitry. The high frequency shielding exceeds Class A requirements (CENELEC EN-50083-2:1998) over the whole frequency range.

**Specifications**

V1 jun 11, 2007

	Port	Range	Min	Typical	Max	Units	Remark	Margin
Frequency Range	-		5		862	MHz		
Equipment Approval				CE				
Housing				NiSn plating				
Material	F-spring			Silver plated				
Backcover	Sealed with			Epoxy				
Insert				Green				
Modem Safe circuit				all ports				
Screws	Earth			NiSn plated				
Ingress Safe	Mounting			NiSn plated				
	Tap			2 & 3				

**Ordering Information**

TLT-4-20+/I	4-way tap	Article number:	10930602
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## Ingress Safe



An exciting new technology is called Ingress Safe®.

The use of this technology in CATV products is unique. Thanks to the phase cancellation phenomenon, the ingress levels in the CATV network can be drastically reduced. Our unique and Patented Ingress Safe® technology is an effective method to reduce subscriber ingress significantly. As there is a correlation between the frequency and phase of ingress signals with a common origin from two adjacent subscribers, we can use this phenomenon to reduce ingress near to the source.

In traditional products phase related ingress equals approximately  $13\text{Log}(n)$  to  $17\text{Log}(n)$  dB where  $n$  is the number of ports. This means the addition of ingress reduces the carrier to noise ratio between 3.9 dB to 5.1 dB in a 2-way splitter.

A 180° phase shifting device is added to the output of the device. The effect is that the ingress from one subscriber is added in the device 180° out of phase with the ingress from a second subscriber, thereby cancelling each other out. Field tests show that Ingress Safe® units in the distribution network can improve the carrier to noise ratio from 3 dB up to 8 dB.

Each Ingress Safe® model is fitted with integrated ingress reduction

## Modem Safe



Modem Safe® is a highly effective surge protection solution. It blocks high level surge pulses and unwanted DC voltages, thus protecting sensitive equipment. In addition to the protection against these surges and voltages, ModemSafe technology® also prevents the internal ferrites becoming magnetized. When ferrite material is magnetized, the intermodulation behaviour deteriorates resulting in an increase of passive intermodulation products. Thanks to the ModemSafe® circuitry, the intermodulation behaviour of the models is excellent and will not deteriorate over time.

## Specifications

V1 jun 11, 2007

	Port	Range	Min	Typical	Max	Units	Remark	Margin
Insertion Loss	In -> Out	5 MHz < F < 15 MHz		0.7	1.1	dB		
		15 MHz < F < 40 MHz		0.6	0.9	dB		
		40 MHz < F < 550 MHz		0.6	1.0	dB		
Tap Loss	In -> Tap 1, 4	550 MHz < F < 862 MHz		1.0	1.6	dB		
		5 MHz < F < 550 MHz		19.5	20.5	dB		
		550 MHz < F < 862 MHz		19.8	20.8	dB		
Return Loss	In -> Tap 2,3	5 MHz < F < 550 MHz		20	21	dB		
		550 MHz < F < 862 MHz		20.3	21.3	dB		
		5 MHz < F < 40 MHz	22			dB		
Isolation	Out -> Tap	40 MHz < F < 862 MHz	22			dB	2	
		5 MHz < F < 40 MHz	31			dB		
		40 MHz < F < 550 MHz	30			dB		
Screening Effectiveness	Tap -> Tap	550 MHz < F < 862 MHz	24			dB		
		5 MHz < F < 40 MHz	30			dB		
		40 MHz < F < 862 MHz	25			dB		
Screening Effectiveness	-	5 MHz < F < 300 MHz	85	95		dB	1	
		300 MHz < F < 470 MHz	80	90		dB	1	
		470 MHz < F < 862 MHz	75	85		dB	1	

Remarks	
1	Transfer Impedance Method according IEC 60728-2(5-30 MHz) Absorption clamp method according IEC-60728-2 § 4.4 (30-1000 MHz)
2	F > 40 MHz -1.5 dB/oct

note:	Specifications are measured at room temperature
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