
PASS-THROUGH RADIOFREQUENCY AND DC EXTRACTORS

DBT SERIES

Overview

High current DC/RF Extractor-Inserter particularly developed for cellular repeaters and radio-base wireless applications where is required to extract and re-insert (pass-through) a DC power, RF power and FSK surveillance carrier present on a coaxial cable such as a radiating cable or remote tower cable supply. An ASB Series DC/DC converter is normally foreseen to insert on the cable a stabilized DC voltage, a radiofrequency signal in the frequency range from 400 to 2000 MHz and a base band FSK 132 kHz surveillance carrier.

As an example, the radiofrequency field covering of a railway tunnel is provided with the use of a radiating cable and some line amplifiers. At the entrance of the tunnel the radiofrequency, coming from an antenna and one or more band selective amplifiers, is injected in parallel with DC current and FSK carrier. Along the radiating cable, the RF power losses are compensated by the line amplifiers, supplied by the superimposed DC power and supervised by the FSK carrier; the three signals are extracted from and re-inserted in the cable by means of a DBT Series extractor.

Electrical characteristics

The most important characteristics that distinguish this type of extractor are:

Max. working DC voltage	120 Vdc
Max. DC pass current	10 A
Max. DC extract current	300 mA
Max. DC voltage drop	50 mV
AC residual ripple (132 kHz)	less than 2% RMS
RF residual noise	less than 40 dB
Single unit MTBF	ab. 500.000 hours

Pass-through DC current

The product range includes the following models as a function of the passing DC current and pass connector type.

Model	Pass Conn.	Pass Current
DBT-NS-NS	N	5 A
DBT-4S-4S	4,1/9,5	10 A
DBT-7S-7S	7/16	10 A

RF and FSK carrier characteristics

RF Impedance	50 ohm
RF Frequency range	400 - 2000 MHz
RF Input power	< 50 W (47 dBm)
RF Insertion loss	< 0,3 dB
RF Flatness	< 0,3 dB
RF Return loss	< -20 dB
Output RF connector	SMA Female
FSK Frequency	132 kHz
FSK level	< 3 V Rms
FSK connector	2 x SLA

Accessories

A wide range of accessories is available to equal the extractors to the more complex applications and specifications.

The ones foreseen in normal production are the following.

- DC By-pass (No DC pass-through)**
- DC extract overcurrent protection (PTC)**
- DC extract overvoltage protection (MOV)**
- DC extract voltage stabilization (10W - 48V)**
- FSK Modem (Analog carrier)**

Mechanical characteristics

The foreseen mechanical construction are of two types: an inside metal box type (no IP protection) and a stand alone type (IP67 protection). The overall dimensions are the following.

Model	Width	Height	Depth
Stand-alone	150mm	45mm	100mm
Inside box	130mm	45mm	85mm

Ambient compatibility

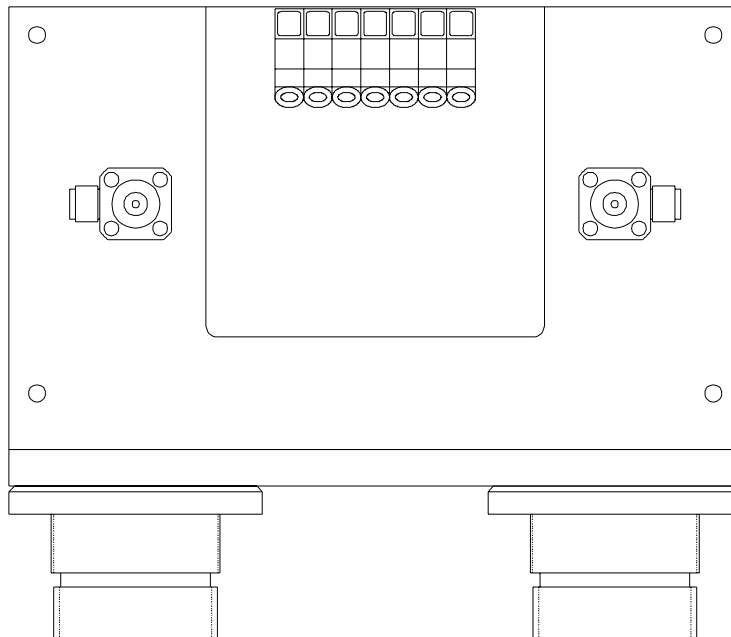
The extractors are submitted to typical or production tests to warrant the ambient compatibility. The fundamental tests are the following (* identifies typical tests).

*Vibrations	5 m.s ⁻² - 0,032mm
*Storage temperature	from -40 to 70 °C
*Working temperature	from -20 to 65 °C
1,2/50 μs pulse withstand	2 kVp
Insulation resistance	100 MΩ at 500 Vcc
CE mark ref. standards	EN50081-2/50082-2

Product range

Model	Working voltage	Pass current	FSK Modem	RF Frequency range 1=0,4-1GHz 2=0,8-2GHz	DC By-Pass	Over current protection	Over voltage protection
DBT-NS-NS	50	5	132	1/2	D1	P1	P2
DBT-NS-NS	70	5	132	1/2	D1	P1	P2
DBT-NS-NS	115	5	132	1/2	D1	P1	P2
DBT-4S-4S	50	10	132	1/2	D1	P1	P2
DBT-4S-4S	70	10	132	1/2	D1	P1	P2
DBT-4S-4S	115	10	132	1/2	D1	P1	P2
DBT-7S-7S	50	10	132	1	D1	P1	P2
DBT-7S-7S	70	10	132	1	D1	P1	P2
DBT-7S-7S	115	10	132	1	D1	P1	P2

Mechanical dimensions



DBT-7S-7S (7/16 - SMA Dual Port) Top view