# 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 coxial 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 whit 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 chacteristics

| | |
|---|---|
| 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

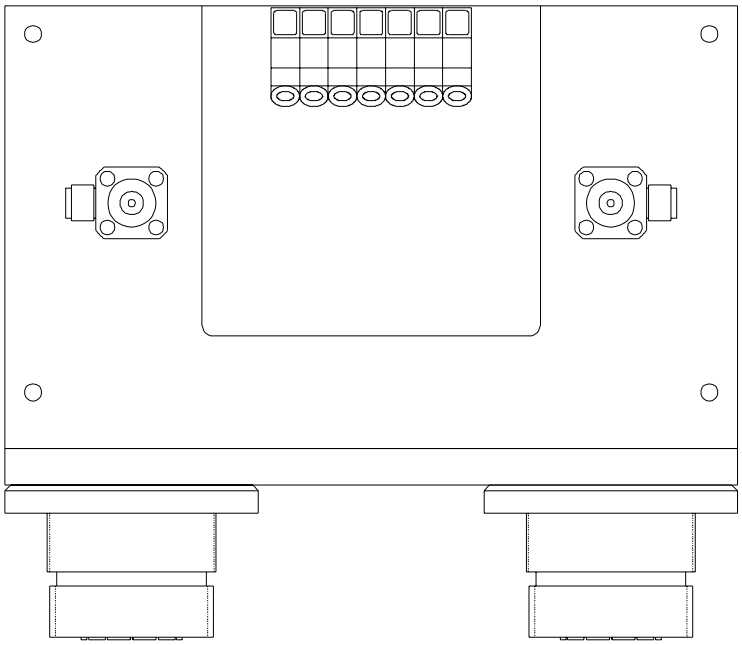
The extractors are submitted to typical or production tests to warrant the ambient compatibility. The fundamental tests are the following (* identifies typical tests).

| | |
|---|---|
| ***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**