RO.VE.R. BROADCAST

INTRODUCES:

NEW! PRELIMINARY INFORMATIONS

mod. "DTR 800/..."

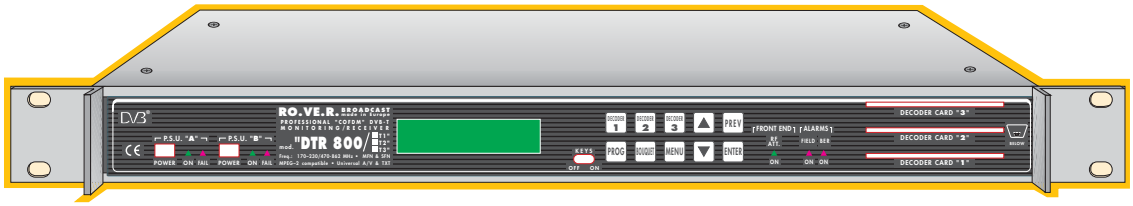
PROFESSIONAL DIGITAL TERRESTRIAL "COFDM" DVB-T MONITORING/RECEIVER

WITH EMBEDDED CONDITIONAL ACCESS

MFN &SFN (QPSK, 16 OR 64 QAM), DVB-T & MPEG–2 FULLY COMPLIANT

FREQ.: 170-230 / 470-862 MHz • Up to 3 simultaneously: AUDIO–VIDEO & TXT PROGRAMS

- 1 UNIT 19" RACK ASSEMBLY
- EASY TO INSTALL AND USE
- UP TO 3 CONDITIONAL ACCESS READER
- UP TO 20 BOUQUET AND MORE THAN 100 STORABLE PROGRAMS
- DIRECT ACCESS TO THE STORED BOUQUET OR PROGRAMS
- SUPERB PAL–SECAM–NTSC AUDIO/VIDEO QUALITY
- N. 2 ISOLATED VIDEO OUT (FOR EACH PROG.)
- BALANCED STEREO AUDIO OUTPUT
- N. 1 BASE-BAND OUT (2° IF)
- RADIO ON SCREEN GRAPHICS
- WIDE MENU OF SIGNALS, MEASUREMENTS AND ALARMS
- ASI OUT (OPTIONAL)
- MER MEASUREMENT (OPTIONAL BOARD)
- PROGRAMMABLE 10 dB RF IN ATTENUATOR
- PSU REDUNDANCY (OPTIONAL)



MAIN FEATURES & DESCRIPTION

The "DTR 800/..." is a digital terrestrial DVB-T monitoring receiver specifically designed and developed for broadcasting applications.

Each part of the monitoring receiver was designed with care in order to guarantee high quality operation and an agreeable design. Special attention was shown to the mechanical, electrical and software design, applying them in a way that assures excellent performances reliability in every working condition.

The "DTR 800/..." digital terrestrial monitoring receiver with DVB–T demodulator can be tuned to any specific COFDM modulation and automaticaly select: 7/8 MHz BW, F.E.C., Int. Guard., QPSK, 16 or 64 QAM.

All data can be selected from the front panel keyboard and shown on the LCD back–light display panel, with self–explanatory, easy–to–use menu.

Testing procedures of production have been methodically and technically planned to obtain maximum accuracy and reliability.

Before the final test stage the equipment undergo temperature cycles, vibrations and accelerated aging in special rooms.

The monitoring receiver can contain up to three MPEG–2 decoder boards and each board has:

N.2 video outputs (for each program)
N.1 balanced stereo audio output

ALARMS

The monitoring receiver is equipped with the following presettable alarms:

- PSU failure
- Absence or decrease of the received field (programmable).
- B.E.R. increase (programmable).
- Smart card related alarms: up-side insertion, card absence, no rights on the smart card.
- MPEG–2 stalling (no video).
- Programable video muting: when one or more alarms are activated
- Programmable total reset (for remote locations).

MEASUREMENT

All the following measurements are selectable on the front panel display:

- Field power in dBµV and dBm
- B.E.R. before and after viterbi
- SNR / MER
- Receiver temperature in °C
- F.E.C. value
- Guard interval, value
- Modulation type: QPSK- 16 or 64 QAM
- Unlock demodulator, counter-monitoring
- SPECTRUM status: normal or inverted

TECHNICAL SPECIFICATIONS

R.F. (DEMODULATOR)

- **Input frequency:**
  170 - 230 MHz BW = 7/8 MHz
  470 - 862 MHz BW = 7/8 MHz
- **Frequency resolution**
  166,666 KHz
- **Input connector:**
  "F" female
- **Input impedance:**
  75 Ω assymmetrical
- **Return loss:**
  ≥12 dB typ. (8 min.)
- **Input level:**
  from –75 dBm to +10 dBm
- **Noise figure:**
  7 - 12 dB typ.
  with RF attenuator off
- **Image rejection:**
  >48 (55 - 80 dB typ.)
- **2nd I.F. cent. freq. :**
  4,571 MHz, -7dBm (50 Ω BNC)
- **R.F. input attenuator:**
  0/10 dB programmable
- **Guard interval (Auto selection):**
  1/2, 1/8, 1/16, 1/32
- **Modulation type (Auto selection):**
  QPSK, 16 QAM, 64 QAM
- **Carrier N. (Auto selection):**
  2K, 8K
- **FEC (Auto selection):**
  1/2, 2/3, 3/4, 5/6, 7/8
- **REED Solomon decoder:**
  204/188
- **Transport stream interface:**
  ISO 13818–1
- **Spectrum polarity (Auto selection):**
  Normal/reverse
- **Reception type:**
  Static or mobile
- **ASI OUT:** standard

VIDEO

- **Analog video signal out (CVBS):**
  PAL–NTSC SECAM (selectable)
- **Gain/frequency flatness:**
  ±0,5 dB typ. (1,5 dB max.)
  between 25 Hz and 4,5 MHz
- **Luminance non–linearity:**
  <2% (3% max.)
- **Sync compression:**
  <1,5% (2% max.)
- **Luminance bar tilt:**
  <1,5% (2% max.)
- **Base line distortion**:
  <1,5% (2% max.)
- **2T K response:**
  <1,5 % typ. (2% max.)
- **Chrominance/luminance ratio**
  <2% typ. (5% max.)
- **Chrominance/luminance delay:**
  <20 nS typ. (40 nS max.)
- **Chrom./luminance intermodulation:**
  <1,5% (2% max.)
- **Differentail gain:**
  1,5% (2% max.)
- **Differential phase:**
  1,5° (2° max.)
- **S/N videometric weighted:**
  ≥60 dB W
- **Video signal outputs:**
  N.2 isolated for each prog.(BNC connector)
- **Video output impedance:**
  75 Ω
- **VSWR video output:**
  ≥25 dB in the 25 Hz to 5 MHz band
- **Video output level:**
  1 Vpp adjustable
- **Profile and level:**
  @several resolutions, MP@ML (4:2:0)
- **GOP type:**
  I–P–B
- **Audio/video delay:**
  ≤2 mS
- **Teletext processing:**
  yes, all lines

VARIOUS

- **Selection of the required bouquet:**
  By the direct key on the front panel of the receiver with only the following data:
  – bouquet's RF frequency
- **Selection of desired program:**
  using the direct key on the front panel
- The programme chosen as the programme to be received (Radio, TV or data) will be memorized in the receiver's first start–up memory
- **Programmable via RS 232 (opt.)**

AUDIO

- **Balanced audio outputs:**
  No.1 stereo channel or
  No.2 mono channels per board
- **Connectors:** pluggable screw type
- **Output impedance:**
  <20 Ω balanced
- **Output level (at 600 Ω):**
  adjustable from 0 to +16 dBm
- **Compression layers:**
  MPEG–2 layers 1 and 2
- **Sample rate:**
  32 / 44.1 / 48 KHz
- **Bit Rate Mono/Dual Mono/ Stereo/Joint Stereo:**
  32 ÷ 384 Kbit
- **Bandwidth:**
  30 Hz ÷14500 Hz ±1 dB (with L.P.F.)
- **Total harmonic distortion:**
  at 0 dBm 1 KHz = 0.5%
- **Data rates:**
  up to 448 Kbit/s
- **Cross talk:** –60 dB typ.
- **Noise level to 0 dB:**
  –70 dB typ. (60 dB min.)

ALARMS (on LCD display)

- **PSU** failure
- **Absence or decrease of the received field:**
  Adjustable threshold: –60 up to 0 dBm
  When the alarm is activated the red LED on the front panel lights up and the fieldrelay contacts close relay
- **B.E.R. increase:**
  Adjustable threshold: $1x10^{-8}$ up to $2x10^{-4}$
  When the alarm is activated the red LED on the front panel lights up and the BER relay contacts close
- **Smart card:**
  The receiver is able to detect and to highlight the absence of the smart card, the possible uncorrect insertion, the absence of rights on the smart card itself
- **Major problems:**
  Due to MPEG–2 decompression process stall is also evidenced
- **Programmable video muting:**
  When one or more selected alarms are activated
- **Programmable total reset:**
  Every 12624 h (for remote location)

MEASURES (on LCD display)

- **Field power** in dBμV and dBm
- **B.E.R.** before and after Viterbi
- **SNR / MER**
- **Receiver inside temperature in °C**
- **F.E.C.:** value
- **Guard interval:** value
- **Modulation type:**
  QPSK- 16 or 64 QAM
- **Unlock demodulator counter-monitoring:**
  record the N. of unlock
- **RF SPECTRUM status:**
  normal or inverted

OTHERS

- **Power supply:**
  230 Vac ± 10%
- **Power:** 30 W
- **Dimensions:**
  W 483 x H 45 x D 432 mm
- **Rack units:**
  19" Rack, 1 unit
- **Weight:** 3 Kg
- **Operating temperature:**
  from -10° to +50°C

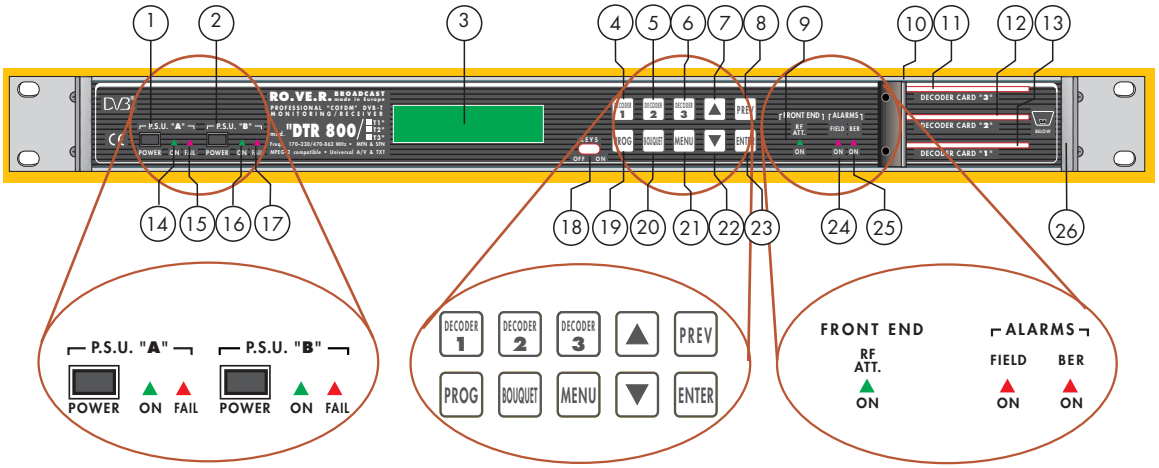
OPTIONS

- **LVDS Transport Stream Interface out**
- **2° L.P. video filter (each M-PEG board)**
- **Redundancy PSU with alarms**
- **Card reader (each programme)**
- **Viacess, Seca, Conax rigths (each prog)**
- **MER measurement board**
- **ASI out**

ORDER

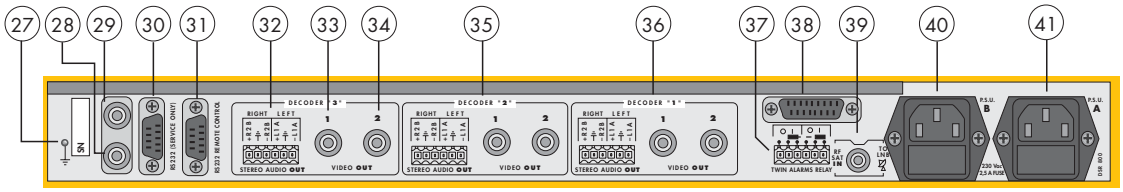
- **mod. "DTR 800/T1"** (N.1 M–PEG board)
- **mod. "DTR 800/T2"** (N.2 M–PEG boards)
- **mod. "DTR 800/T3"** (N.3 M–PEG boards)

FRONT PANEL



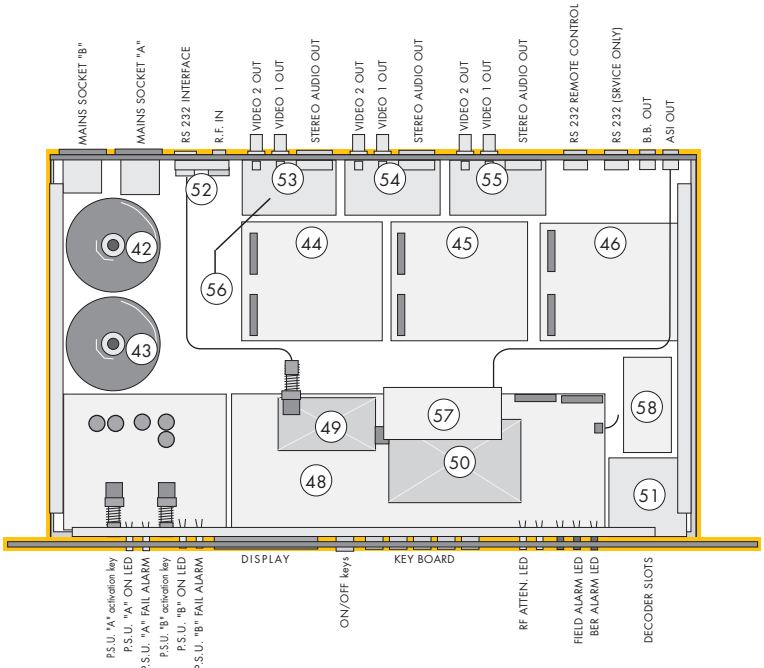
1 P.S.U. "A" activation key
2 P.S.U. "B" activation key
3 Back–light liquid crystal display, 2 x 16
4 M–PEG board N. "1" selection key
5 M–PEG board N. "2" selection key
6 M–PEG board N. "3" selection key
7 UP ▲ selection key to increase
8 PREV previous parameter key
9 10 dB RF attenuator ON (green LED)
10 DECODER CARD holder
11 CARD READER for N. "3" M-PEG BOARD
12 CARD READER for N. "2" M-PEG BOARD
13 CARD READER for N. "1" M-PEG BOARD
14 P.S.U. "A" ON (green LED)
15 P.S.U. "A" FAIL (red LED)
16 P.S.U. "B" ON (green LED)
17 P.S.U. "B" FAIL (red LED)
18 Keys ON/OFF to disactivate front panel keys
19 PROGRAMME direct selection key
20 BOUQUET direct selection key
21 MENU selection key
22 DOWN ▼ selection key to decrease
23 ENTER (to confirm) parameters key
24 FIELD ALARM status (red LED)
25 BER ALARM status (red LED)
26 19" Rack handle

BACK PANEL



27 Ground screw
28 ASI OUT (BNC)
29 B.B. OUT (BNC)
30 RS 232 interface (SERVICE ONLY)
31 RS 232 interface (REMOTE CONTROL optional)
32 Board "3" audio out
(+R2B – GND / –R2B / +L1A – GND / –L1A connectors)
33 Board N."3" video output N."1" (BNC connector)
34 Board N."3" video output N. "2" (BNC connector)
35 Board N."2", the same as board N."3", see points 32 to 34
36 Board N."1", the same as board N."3", see points 32 to 34
37 Twin alarms relay (ON/OFF – OFF/ON contacts)
38 LVDS OUT Transport Stream Interface (opt.)
39 RF input (F female connector)
40 Mains socket and fuse "B" (optional redundancy)
41 Mains socket and fuse "A"

INTERNAL VIEW



42 Mains transformer
43 Mains transformer (opt.)
44 M–PEG board N."1"
45 M–PEG board N."2"
46 M–PEG board N."3"
47 Switching power supply board
48 Front–end board
49 RF input attenuator
50 Tuner
51 Card readers N."1", N."2" and N."3"
52 LVDS OUT Transport Stream Interface board (opt.)
53 Audio/Video processor board N."1" and related audio/video level adjust. trimmer
54 Audio/Video processor board N."2" and related audio/video level adjust. trimmer
55 Audio/Video processor board N."3" and related audio/video level adjust. trimmer
56 2° L.P. video filter (opt.)
57 ASI OUT board (opt.)
58 MER measurement board (opt.)

BLOCK DIAGRAM