

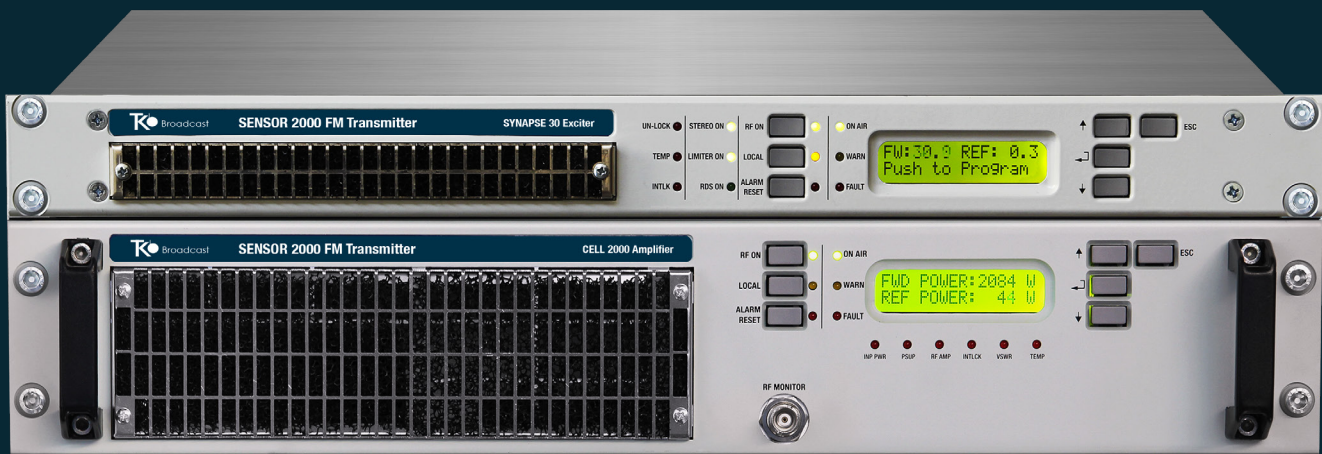


CORTEX /1 Series

High Efficiency FM Amplifier

UNION of AXON-1 Exciter and CELL AMPLIFIER

Output Power Ranges 500, 600W, 1000W, 1300W, 2000W, 2500W, 3000W



- DIRECT ACCESS KEY TO MAIN COMMANDS
- SMART NAVIGATION KEYS WITH ESC COMMAND
- OVERALL STATUS SHOW BY LEDS
- AIR FILTER STANDARD
- ANALOG AND DIGITAL READY FM AMPLIFIERS
- HD RADIO AND DRM COMPATIBILITY
- UP TO 80% OVERALL EFFICIENCY
- PLANAR ARCHITECTURE
- 65:1 VSWR TOLLERANT
- FULLY RF AND POWER SUPPLY REDUNDANT
- PLUG-IN POWER SUPPLY REPLACEABLE
- SENSE AMPLIFIERS NATURAL OUTCLASS GREEN TECHNOLOGIES
- HIGH EFFICIENCY LAST GENERATION LDMOS TECHNOLOGY UP TO 85%
- TOTAL SPECTRAL PURITY: > -100 DBC SPURIOUS, > -84 DBC HARMONICS
- FULL RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- HIGHEST RF SIGNAL QUALITY
- REMOTE CONTROL BY TCP/IP: WEB + SNMP OF ALL SIGNAL PARAMETERS

Output power 1300W or 2500W using High Efficiency last LDMOS technology housed into an ultra-compact cabinet of only 2U height.

For any application SENSE Series is the ultimate solution that meets most demanding customer requirements and guarantees professional features at affordable price.

HOT PLUG-IN POWER SUPPLY

Replace the power supply in ONE MINUTE 4 Steps

- Remove the front panel
- Pull Off the sliding power supply
- Insert the new Power Supply
- Install the front panel

OVERALL AMPLIFIER CHARACTERISTICS

Hardware and Software Protections

- Over and Under Voltage DC, Over and Under Voltage AC, RF and Power Supply Temperature, RF Coaxial Output Open or Short Circuit
- Capability of a long working time on Short/Open loads at all phase angles without any damage.
- Last generation 1400 W LDMOS, VSWR > 65:1 @ all Phase Angles, designed for enhanced ruggedness ISM applications and plasma generators.
- Integrated AC Mains filtering.
- Integrated lightning protection.
- Delayed energized of the system after Mains Power Blackout prevents against peaks and high variation voltages typical of this events.
- Soft controlled sequential start-up so to reduce the Inrush current during OFF to ON transition.

WEB/SNMP Telemetry and Remote Control

- Full Local or Remote control by by logon username and password.
- Remote control with Smartphones or Tablet.
- Host Logic and tele-measurement (TM, TC & TA).
- Remote control and monitoring via SNMP and/or WEB interface.
- With logbook or log file to record error or alarm message.
- Display of forward/reflection power value and reflection high alarm.
- TCP/IP, SNMP, GSM and PSTN TELEMETRY

Human Interface

- Each module is equipped with a logic controller that allows full control by a local operator.
- All transmitter and amplifier parameters required for diagnostics can be retrieved locally or remotely via standard (IP) protocol and standard software (web browser, SNMP).
- Multilingual user guidance.
- High Definition, high contrast Color Oled display.
- Quick set of thresholds for protections level. This set is based on assignment of three "flavors" or PERSONALITIES: Conservative (primary target = protect itself), Standard (balanced), Aggressive (primary target = transmission without interruptions).

TECHNICAL CHARACTERISTICS

CELL Tech HIGH Efficiency.

- Output power on/off and adjustable from front panel and remotely.
- Overall Efficiency up to 80%.

When developing CELL Series, the main target was: Always on Air, Less than 7 kg (15 lbs) of modules-weight, Easy maintenance, Low consumption and High Efficiency

- RF Input Connector: N Type.
- RF Output Impedance: 50 ohm.
- RF Output Connector: 7/16 Type. (other on request).
- Monitor RF: -57 dBc, BNC connector.
- VSWR: 1.5:1 Maximum with automatic fold-back at higher VSWR.
- Very high efficiency (more than 75%).
- Last LDMOS technology for power modules.
- Ultra High RF efficiency (>80 % typ.) software optimized for each power level.
- Lowest weight and dimensions in the industry.
- Lower device heating.
- Lower room heating.
- Lower space occupied.
- Lower maintenance needed.
- Small dimensions and low weight, reduce transportation costs and simplifying the logistic.
- Longer Component Lifespan.
- Reduced Electricity Costs.
- Lower Maintenance Costs.
- Reduced Cooling Costs.
- Fewer Fans.

Electrical Characteristics

- Very high harmonics suppression (-90dB).
- Independent, individual APC (Automatic Power Control) circuit maintain a constant output power set.
- Frequency-response-compensated directional couplers and precision internal indicators.
- Distributed less binding Low Pass filter.

AC Input Power: 220/400 VAC $\pm 15\%$, 50/60 HZ single phase

Power factor > 0.98.

Cooling: Forced air

Efficiency= 80%

ENVIRONMENTAL

Operating temperature: -10°C to +50°C.

Max Operating Altitude: 4000 mt.

Relative Humidity Range: 0 to 95% non condensing.

PHYSICAL DIMENSIONS:

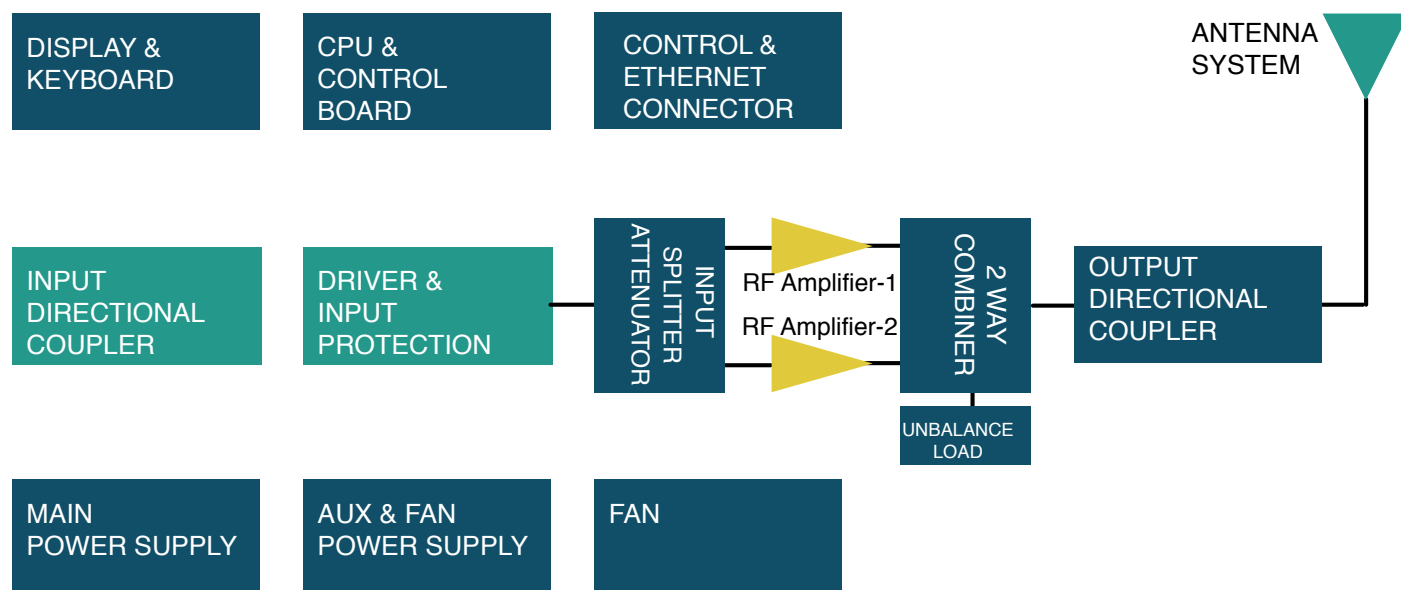
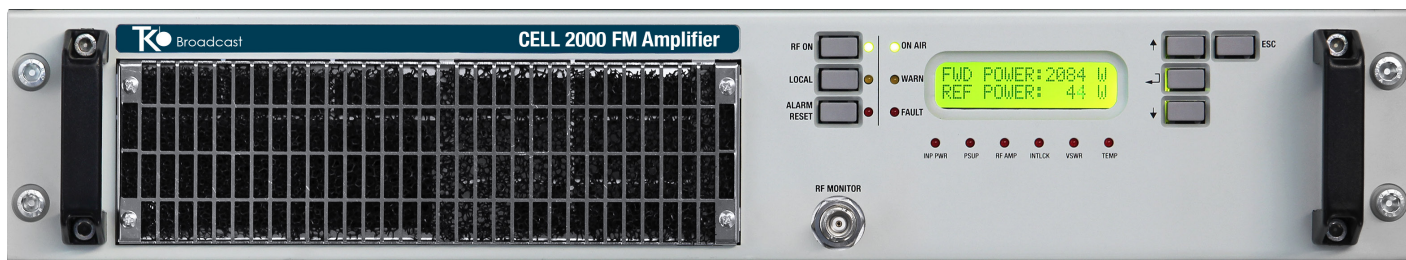
Mounting: Standard 19" chassis 3 U rack.

Size: 485 mm. W x 550 mm. D x 88 mm. H.

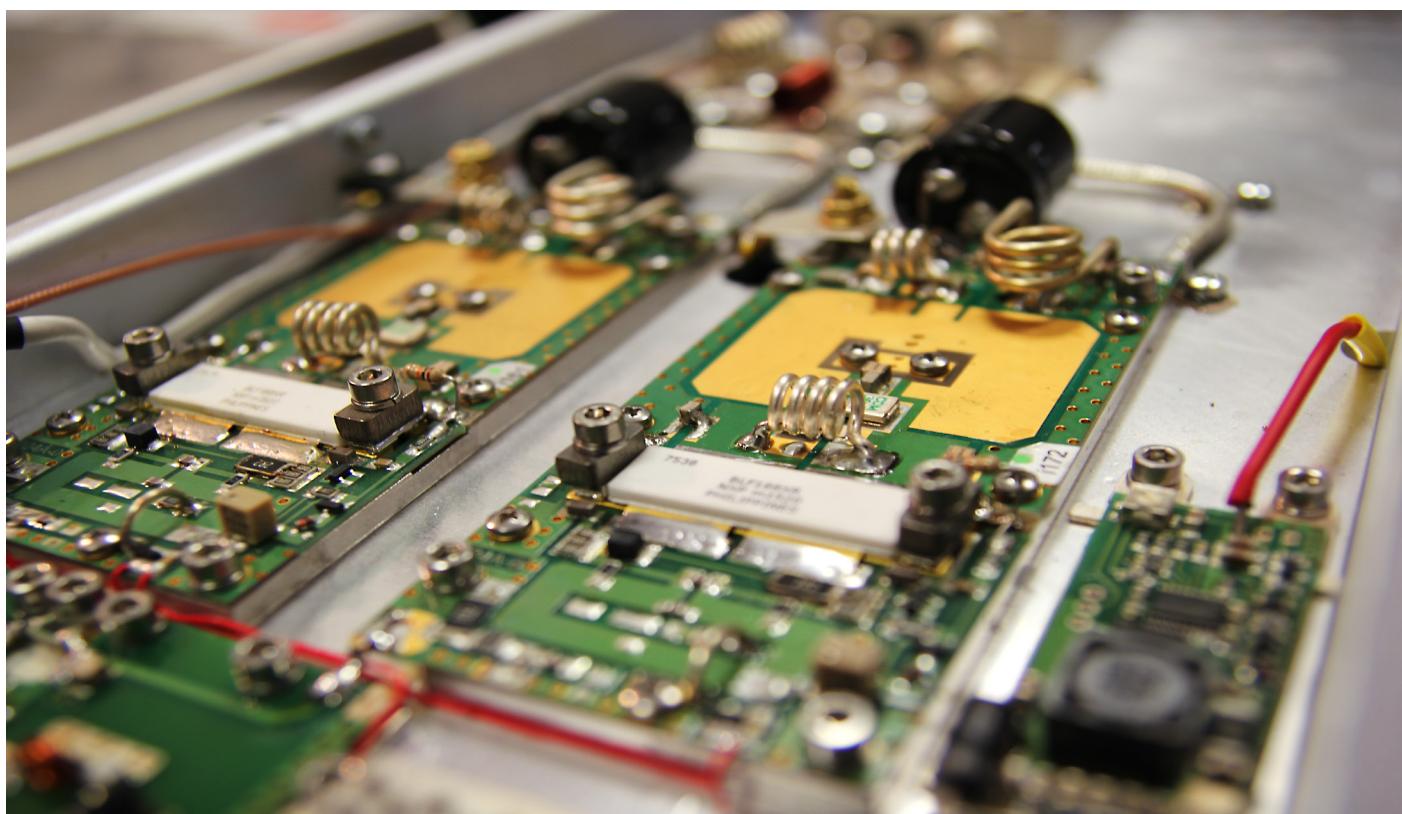
Weight: ~ 17 Kg.

CORTEX /1 Back View





CORTEX /1 Planar Technology



OVERALL EXCITER CHARACTERISTICS

GENERAL

Power Output: 50 W adjustable from front panel.
RF Output Impedance: 50 ohm.
RF Output Connector: "N" type.
Monitor RF: -46 dBc, BNC connector
VSWR: 1.5:1 Maximum with automatic fold-back at higher VSWR
Frequency Range: 87.5 ÷ 108.00 MHz, on request 66 ÷ 74 MHz (OIRT), 76 ÷ 90 MHz (JPN) Programmable in 10 KHz steps.
Frequency Stability: ±1 ppm from -5 to 50°C.
Frequency Control: Synthesizer μ processor control.
Type of Modulation: Direct frequency modulation of carrier frequency, F3E stereo and mono.
Lock in Time: Typ. 4 second.
Off Lock Attenuation: ≥ -60 dBc.
Modulation Capability: ±150 KHz.
Modulation Mode: Mono, Stereo, Multiplex, Aux.
Preemphasis: Flat/50/75 μ s selectable internal jumper.
Asynchronous AM S/N Ratio: -80 dB below reference carrier with 100% AM modulation @ 400 Hz, without FM modulation.
Synchronous AM S/N Ratio: -65 dB below reference carrier with 100% AM modulation @ 400 Hz with FM modulation ±75 KHz @ 400 Hz.
RF Harmonics: Exceeds EBU/CCIR/FCC requirements.
RF Spurious: Exceeds ETSI/CCIR/FCC requirements.

MONAURAL OPERATION

Audio Input Impedance: 600 ohm balanced, 10 Kohms unbalanced.
Audio Input Level: -3 to +9 dBm.
Input Connector: XLR female.
Audio Frequency Response: ±0.1 dB, 30 Hz to 15 KHz.
Total Harmonic Distortion + Noise: 0.05% @ 400 Hz
Intermodulation Distortion: 0.05%, 1 KHz/1.3 KHz, 1:1 ratio
Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.
Distortion: 0.05%, 2.96KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -82 dB RMS, -80 dB at ±75 KHz dev., 50 μ s de-emphasis, weighted.

MULTIPLEX OPERATION

Composite Input Impedance: 1.2 Kohm unbalanced.
Composite Input Level: +6 to +12 dBm
Input Connector: BNC female.
Composite Amplitude Response: ±0.2 dB, 30 Hz to 100 KHz.
Total Harmonic Distortion + Noise: 0.05% @ 400 Hz
Intermodulation Distortion: 30 Hz to 15 kHz * 0.05% @ 400 Hz
Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -83 dB RMS detector, -80 dB AT ±75 KHz dev., 50 μ s de-emphasis, weighted.

STEREO OPERATION

Audio Input Impedance: 600 ohm balanced, 10 Kohm unbalanced.
Audio Input Level: -3 to +9 dBm.
Input Connector: XLR female. Audio Frequency Response: ±0.1 dB, 30 Hz to 15 KHz.

Total Harmonic Distortion + Noise: 0.05% @ 400 Hz
Intermodulation Distortion: 0.05%, 1 KHz/1.3 KHz, 1:1 ratio
Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -73 dB RMS, -71 dB at ±75 KHz dev., 50 μ s de-emphasis, weighted.
Stereo Separation: 30÷80 Hz ≥ -50 dB, 80Hz÷15 KHz ≥ -60 dB (Typ. 65 dB).
Crosstalk attenuation: Main to Sub -50 dB 30 Hz to 15 KHz
(typ. -55 dB 100 Hz to 8 KHz).
38 KHz Suppression: ≥ -65 dB
(typ. -80 dB).
Pilot Frequency: 19 KHz ± 1 Hz
Output Pilot: 1 Vpp., BNC female
Audio Filter Attenuation: ≥ -44 dB @ 19 KHz, > -27 dB 20 KHz to 100 KHz.
Modes: Stereo, Mono

AUXILIARY INPUT

Input Impedance: 3 Kohm.
Input Level: -3 to +6 dBm.
Frequency Response: ±0.2 dB, 40 KHz to 100 KHz.
Input Connector: BNC female. Most SCA, RDS, AUX, performance parameters are determined primarily by the generator used.

TELEMERTY CONNECTOR

DB9: female connector back panel for remote connections.

OPTIONS

DIGITAL STEREO CODERY
RDS/RBDS CODER PROGRAMMABLE BY PC
OIRT & JPN VERSION
LPFM CODE STATION

ELECTRICAL

AC Input Power: 90÷260 VAC 50/60 HZ single phase.
Cooling: Forced air with internal long life brushless ball bearing fan.
Acoustic noise: < -56 dBa @ 1 m.

ENVIRONMENTAL

Operating temperature: -10°C to +50°C.
Max Operating Altitude: 3000 mt asl.
Relative Humidity Range: 0 to 95% non condensing.

PHYSICAL DIMENSION

Mounting: Standard 19" chassis 1 U rack.
W: 485 mm. x D: 405 mm. x H: 44 mm.
Weight: ~ 4,0 Kg

EXCITER WEB INTERFACE

Main page of Web interface on Exciter/Modulator



CTE TX1000-HD 1000W

HomeTX InfoTX SettingsNET ParametersHistory Alarms

RF STATUS: ONMODE: REMOTEAF INPUT: STEREOSWITCH MODE: MANUALRDS STATUS: ONCURR

TX INFO

RF Status

ON

Vpa [V]

10.2

Ipa [A]

7.5

Temperature [°C]

27

Alarms

PI Unlocked

Power Ampli Overheat

Aux Sup

Low De

Excess

Power S

Low Po

Minus 3

Minus 1

Minus 7

Interloc

192.168.10.151

RadioI miei sitiMailSEOInt1ForAnnunci Grati...a - Subito.itAnnunci Grati...a - Subito.itdaniel | TV-F...eko BroadcastBienvenuto a...s - Movistar+CTE Digital B... - DashboardNetflix

TX CTE

CTE TX1000-HD 1000W

HomeTX InfoTX SettingsNET ParametersHistory AlarmsSettingsLogin

RF STATUS: ONMODE: REMOTEAF INPUT: STEREOSWITCH MODE: MANUALRDS STATUS: ONCURRENT DATASET: 0

TX Settings

GENERALINPUT PARAMETERSRDS

Dataset

0

Frequency

0

10100

Reference Deviation 0 [KHz]

75

Target Power

0

50

Limiter

0

Off

192.168.10.151

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TX CTE

CTE TX1000-HD 1000W

HomeTX InfoTX SettingsNET ParametersHistory Alarms

RF STATUS: ONMODE: REMOTEAF INPUT: STEREOSWITCH MODE: MANUALRDS STATUS: ONCURR

NETWORK PARAMETERS

IP Address

192.168.0.10.151

Subnet Mask

255.255.255.000

Gateway

192.168.0.10.001

192.168.10.151

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TX CTE

CTE TX1000-HD 1000W

HomeTX InfoTX SettingsNET ParametersHistory AlarmsSettingsLogin

RF STATUS: ONMODE: REMOTEAF INPUT: STEREOSWITCH MODE: MANUALRDS STATUS: ONCURRENT DATASET: 0

HISTORY ALARMS

EXPORT CSVCLEAR EVENTS

10:38:0-1/2/19

Normal

10:38:0-1/2/19

Power on

10:38:0-1/2/19

Interlock

10:38:0-1/2/19

Normal

10:38:0-1/2/19

Low Power

10:38:0-1/2/19

Stand-by

10:38:0-1/2/19

Stand-by

10:37:0-1/2/19

Low Level

10:37:0-1/2/19

Interlock

10:37:0-1/2/19

Stand-by

19

Stand-by

19

Interlock

19

Interlock

19

Interlock

19

Stand-by

19

Interlock

19

Interlock

19

Stand-by

19

Stand-by

19

Interlock

192.168.10.151

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TX CTE

CTE TX1000-HD 1000W

HomeTX InfoTX SettingsNET ParametersHistory AlarmsSettingsLogin

RF STATUS: ONMODE: REMOTEAF INPUT: STEREOSWITCH MODE: MANUALRDS STATUS: ONCURRENT DATASET: 0

SYSTEM SETTINGS

Time [hh:mm:ss]

10:35:39

Date [dd/mm/yy]

02/02/19

LAN IF Firmware Version

2.0

TX Firmware Version

Fw. 3. 0

Serial Number

812303

Equipment

TX1000-HD

Password

Import LAN IF Firmware

Scegli file

nessuno selezionato

Dynamic RDS OPTION

The WIRED Series of FM Transmitters can all include the Dynamic RDS Option

- Fully dynamic FM broadcast RDS encoder with independent communication port
- Control interface based on ASCII commands and UECP SPB-490 protocol
- Text features include dynamic PS, parsing, scrolling, tagging, fixed messages, scheduling and HTTP reading
- Excellent compatibility with broadcast automation systems
- Control software includes powerful Windows GUI application
- Supports control from external PHP/ASP scripts
- Easy and fast set-up
- Excellent spectral purity, direct digital RDS signal synthesis; compliant with EN 50067 / EN 62106
- Five switchable program sets (with optional DSN and PSN setting)
- Internal real-time clock incl. backup battery
- No special 19 kHz input needed - pilot tone internally recovered from MPX signal using digital PLL

RDS services directly supported by the unit

-
- PI Program Identification
- PS Program Service
- PTY Program Type
- TP Traffic Program
- TA Traffic Announcemen
- AF Alternative Frequencies
- PTYN Program Type Name
- DI Decoder Identification
- EON Enhanced Other Networks information
- RT Radiotext
- RT+ Radiotext Plus
- M/S Music/Speech
- CT Clock-Time and Date
- PIN Program-Item Number
- ECC Extended Country Code
- LIC Language Identification Code
- TMC Traffic Message Channel
- 3A Group free format
- UDG User Defined Groups
- IH in House
- RS232 port to select the data set or initialize any service

DYNAMIC RDS OPTION

User Instruction

PS - Program service name

This is the label of the program service consisting of not more than eight alphanumeric characters, which is displayed by RDS receivers in order to inform the listener what program service is being broadcast by the station to which the receiver is tuned.

RT - Radiotext

This refers to text transmissions, primarily addressed to consumer home receivers, which would be equipped with suitable display facilities. The text can be up to 64 characters long. Some receivers do not support the Radiotext service.

An additional feature of the Radiotext is the Text A/B flag. Two cases occur: If the receiver detects a change in the flag, then the whole radiotext display should be cleared and the newly received radiotext message segments should be written into the display. If the receiver detects no change in the flag, then the received text segments or characters should be written into the existing displayed message and those segments or characters for which no update is received should be left unchanged. For static RT (i.e. RT is not updated and shows only a general information like studio's phone number), the A/B flag has no meaning.

RT+ on iPod [Click here](#) for summarization of national character coding issues

RT+ - Radiotext Plus

The RT+ is designed to let the listener take additional benefit from the Radiotext service by enabling receivers to offer direct access to specific elements of Radiotext. Typically the RT+ feature supports song artist and song title elements. These elements anyway carried in the Radiotext, are identified by their class code, length and location within the Radiotext. The receiver must be equipped with the RT+ function (also called "tagging") to take advantage of this feature.

[Click here](#) for information about how to send RT+ tagging with our RDS encoders

AF - Alternative frequencies list

The list of alternative frequencies gives information on the various transmitters broadcasting the same program in the same or adjacent reception areas. This facility is particularly useful in the case of car and portable radios.

When the PI code indicates local coverage-area, i.e. only one frequency is used, AF list may contain this frequency.

PI - Program identification

This information consists of a code enabling the receiver to distinguish between countries, areas in which the same program is transmitted, and the identification of the program itself. The code is not intended for direct display and is assigned to each individual radio program, to enable it to be distinguished from all other programs. One important application of this information would be to enable the receiver to search automatically for an alternative frequency in case of bad reception of the program to which the receiver is tuned; the criteria for the change-over to the new frequency would be the presence of a better signal having the same PI code.

The PI code consists of four characters. The first two characters have special meaning, second two are used to clearly identify different stations.

The first character identifies country. The second character identifies program type in terms of area

coverage:

- 0 - Local (Local program transmitted via a single transmitter only during the whole transmitting time.)
- 1 - International (The same program is also transmitted in other countries.)
- 2 - National (The same program is transmitted throughout the country.)
- 3 - Supra-regional (The same program is transmitted throughout a large part of the country.)
- 4 to F - Regional (The program is available only in one location or region over one or more frequencies, and there exists no definition of its frontiers.)

ECC - Extended Country Code

It helps the receiver to recognise the country in cooperation with the PI code. The first most significant bits of the PI code carry the RDS country code. The four bit coding structure only permits the definition of 15 different codes, 1 to F (hex). Since there are much more countries to be identified, some countries have to share the same code which does not permit unique identification. The ECC byte determines the country unambiguously.

[Click here to find ECC and first PI digit for your country!](#)

PTY - Program type

This is an identification number to be transmitted with each program item and which is intended to specify the current Program type within 31 possibilities. This code could be used for search tuning. The code will, moreover, enable suitable receivers and recorders to be pre-set to respond only to program items of the desired type. The last number, i.e. 31, is reserved for an alarm identification which is intended to switch on the audio signal when a receiver is operated in a waiting reception mode.

TA - Traffic announcement identification

This is an on/off switching signal to indicate when a traffic announcement is on air. The signal could be used in receivers to:

- a) switch automatically from any audio mode to the traffic announcement;
- b) switch on the traffic announcement automatically when the receiver is in a waiting reception mode and the audio signal is muted;
- c) switch from a program to another one carrying a traffic announcement.

After the end of the traffic announcement the initial operating mode will be restored.

TP - Traffic program identification

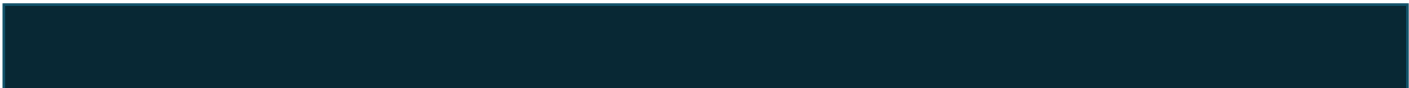
This is a flag to indicate that the tuned program carries traffic announcements. The TP flag must only be set on programs which dynamically switch on the TA identification during traffic announcements. The signal shall be taken into account during automatic search tuning, so I recommend to turn this flag on even though you don't transmit any traffic announcements.

DI - Decoder identification

Indicates which possible operating mode is appropriate for use with the broadcast audio. Many receivers ignore this service completely. For others, only the Stereo and Dynamic PTY flags have a sense. Set the Dynamic PTY if your PTY changes dynamically in dependence on actual program content. Flags Artificial head and Compressed are archaic and should be kept cleared unless you have a real reason for their use.

M/S - Music/speech switch

This is a two-state signal to provide information on whether music or speech is being broadcast. The signal would permit receivers to be equipped with two separate volume controls, one for music



and one for speech, so that the listener could adjust the balance between them to suit his individual listening habits.

CT - Clock-Time and Date

Time and date codes should use Coordinated Universal Time and Modified Julian Day. The listener, however, will not use this information directly and the conversion to local time and date will be made in the receiver's circuitry. CT is used as time stamp by various RDS applications and thus it must be accurate.

EON - Enhanced Other Networks information

This feature can be used to update the information stored in a receiver about program services other than the one received. Alternative frequencies, the PS name, Traffic Program and Traffic Announcement identification as well as Program Type and Program Item Number information can be transmitted for each other service. The relation to the corresponding program is established by means of the relevant Program Identification.

IH - In House Applications

This refers to data to be decoded only by the operator. Some examples noted are identification of transmission origin, remote switching of networks and paging of staff. The applications of coding may be decided by each operator itself.

PIN - Program-Item Number

The code should enable receivers and recorders designed to make use of this feature to respond to the particular program item(s) that the user has preselected. Use is made of the scheduled program time, to which is added the day of the month. The transmitted Program Item Number code will be the scheduled broadcast start time and day of month as published by the broadcaster.

PTYN - Program Type Name

The PTYN feature is used to further describe current PTY. PTYN permits the display of a more specific PTY description that the broadcaster can freely decide (e.g. PTY=4: Sport and PTYN: Football). The PTYN is not intended to change the default eight characters of PTY which will be used during search or wait modes, but only to show in detail the program type once tuned to a program. If the broadcaster is satisfied with a default PTY name, it is not necessary to use additional data capacity for PTYN.

TDC - Transparent Data Channels

The transparent data channels consist of 32 channels which may be used to send any type of data.