

HEAD END | RECEIVERS | MANAGEMENT & CONTROL | CONTENT DISTRIBUTION

# SFD-IP STEREO FM RECEIVER

HIGH QUALITY  
RE-BROADCAST RECEIVER



## Main features;

- High broadcast quality RF parameters
- MPX power measurement & supervising
- Double RF input agile 87,5 to 108 MHz
- Double MPX output
- RDS & RBDS data output (UECP format !)
- Both digital AES/EBU and analogue audio output
- Measurement and supervising of RF, Pilot, BER, RDS, Audio, Deviation etc.
- Large peak meter for digital/analogue audio and MPX deviation
- Live MP3 streamer over IP for audio monitoring
- Programmable inputs and outputs
- Option Extreme high RF spec's according: "UKW-FM Ballempfänger" & SNMP specifications as published by the German "Institut für Rundfunk Technik (IRT)"

The SFD-IP is the successor of the SFD, stereo FM receiver, the SFD-IP offers the new standard in the re-broadcasting market.

The SFD-IP offers highly accurate measurement functionality for RF signal strength, MPX deviation, digital- and analogue audio bar meters, pilot deviation, RDS deviation as well as extensive RDS decoding. The SFD-IP supports double MPX output, analogue and digital AES/EBU audio output and RDS/RBDS data output in UECP format. For network management purposes the SFD-IP can be remote controlled via tcp/ip.

### General

For over two decades IDC develops and provides a wide variety of broadcasting products for the professional broadcast market.

The strong demands from our customers for IDC products forms the basis for the continuously development of new products.

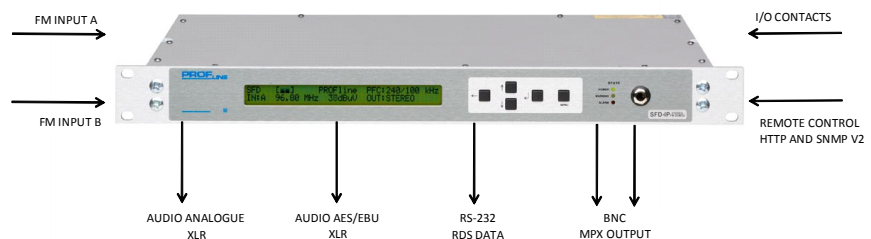
### Remote control

All settings of the IDC SFD-IP, are accessible over the front using the keypad and the display or remotely controlled via TCP/IP.

### Extreme high RF specifications

The SFD-IP can optional be equipped with extreme high RF specifications according the UKW-FM Ballempfänger and SNMP specifications as published by the German "Institut-für Rundfunk Technik (IRT)".

Please contact IDC for detailed information.





## TECHNICAL SPECIFICATIONS

**Frequency input, steps:** 87.5 - 108 MHz, 10 kHz  
**RF tuning stability:** < 500 Hz  
**RF input sensitivity:** 5 to 110 dBµV  
**RF inputs, main and spare:** 2 x BNC, 50/75 Ohm  
**Return loss:** >20 dB

### SELECTIVITY NARROW

**Selectivity at ± 90 kHz:** >-3 dB  
**Selectivity at ± 200 kHz:** >-54 dB  
**Selectivity at ± 300 kHz:** >-95 dB  
**Selectivity at ± 400 kHz:** >-110 dB  
**Selectivity at ± 300 kHz:** lw/lu = -40 dB(mono)

### SELECTIVITY WIDE:

**Selectivity at ± 120 kHz:** >-3 dB  
**Selectivity at ± 200 kHz:** >-30 dB  
**Selectivity at ± 300 kHz:** >-65 dB  
**Selectivity at ± 400 kHz:** >-100 dB  
**Selectivity at +/-300 kHz:** lw/lu = -23 dB(stereo)

**Image rejection:** >100 dB  
**IF rejection:** >110 dB  
**AM rejection at 30% AM/75 kHz dev.:** >72 dB  
**RF Attenuation:** Automatic or manual  
**Adjacent channel suppression:** See selectivity specs  
**Muting threshold:** On/Off or adjustable  
 0 - 50 dBµV  
**Stereo threshold:** Adjustable 20 - 50 dBµV  
**Channel separation (Wide):** >48 dB 1 kHz typical >50 dB  
 >45 dB 100 Hz-500 Hz  
 >30 dB 10 kHz-15 kHz  
**Channel separation (Narrow):** >30 dB 1 kHz

### STEREO DECODER

**Audio level adjustments L&R:** from -90 dB to 15 dB (steps 0.1 dB)  
**L/R separation:** > 46 dB (1 kHz mod. / 40 kHz dev.) typ. > 50 dB  
**Phase:** < 5°, 40 Hz -15 kHz  
**De-emphases:** Adjustable 0-50-75 µsec  
**19 kHz suppression:** > 50 dB

### DISTORTION

**Deviation 40 kHz Left or Right:** < 0.15% 500 Hz -1 kHz  
 < 0.2 5 kHz-15 kHz  
**Deviation 60 kHz Left or Right:** < 0.2% 500 Hz -1 kHz  
 < 0.3 5 kHz -15 kHz  
**Deviation 75 kHz Left or Right:** < 0.45 % 1 kHz

### S/N 1 KHZ (AT 75 KHZ DEVIATION)

**RMS 20Hz-20 kHz:** > 75 dB mono, >73 dB stereo  
**QP CCIIR:** > 70 dB mono, >64 dB stereo

### AUDIO OUTPUT

**Audio main output:** XLR male  
**Output impedance:** 20 Ohm balanced  
**AES/EBU Digital audio output:** XLR male  
**Output impedance:** 110 Ohm balanced  
**Test tone output, 500 Hz:** 500 Hz triangle  
**Audio frequency:** 20 Hz-15 kHz, ± 0.3 dB; ref. 500 Hz@40 kHz deviation 6 dBu  
**Phones (Front panel):** Stereo jack 6.3 mm, 150 Ohm

### MPX OUTPUT

**MPX-output level:** from 0 dB to 11 dB (0,1 dB steps)  
**MPX filter frequency**  
 30 Hz – 65 kHz: +/- 0.3 dB  
 65 kHz-76 kHz: +/- 0.5 dB  
 76 kHz – 100 kHz: - 6 dB down to 100 kHz  
**MPX output impedance:** normal termination 600 Ohm  
 minimum termination 75 Ohm  
 2 x BNC connectors  
**MPX output connector:**

### MEASUREMENT FUNCTION

**Large VU audio output(ppm -dBm):** -60 dBu to 15 dBu (step 1dB)  
**Large VU audio input(ppm -dBfs):** -60 dBfs to 0 dBfs (step 1dB)  
**MPX deviation level:** from 0 to 125 kHz (step 1 kHz)  
**RF level:** from 0 to 120 dBuV  
**Pilot level 19 kHz:** from 0 to 15 kHz (step 0.1 kHz)  
**RDS level 57 kHz:** from 0 to 6 kHz (step 0.1 kHz)  
**RDS BER level:** from 0 to 100% (step 1 %)  
**RDS:** MS, CT, RT, AF, PS, PI,DI, TA, TP, PTY, Clock  
 64 level deep logging of alarms are stored in a fifo memory  
**Alarm logging:**

### DATA AND ALARM PORTS REAR PANEL

**RDS/RBDS dataport:** Protocol: UECP (incl.Free Format) via SUB-D25 impedance 600 Ω  
**MPX input:** 0 µsec/stereo, 50 µsec/mono  
**MPX input pre-emphasis:** Impedance 600 Ohm  
**RDS/SCA input:** 600 Ohm (monitoring)  
**MPX output nr 3:** TTL level, Sub D9 connector  
**4 Programmable inputs:** Preset control, frequency step +/-  
**Input functionality:** TTL level, Sub D9 connector  
**4 programmable outputs:** RDS status TA, M/S etc..  
**Output functionality:** Sub D25 connector female  
**Alarm connection (relay contacts):** Triple relay, no/nc  
**Alarm set up, menu-controlled:** -60 dB to 0 dB in 1 dB steps  
**Audio level Right or Left channel:** from 0 to 160 kHz (step 1 kHz)  
**Mpx deviation level:** min/max RF from 1 to 119 dBuV  
**RF level:** from 0 to 15 kHz (step 0.1 kHz)  
**Pilot level 19 kHz:** from 0 to 6 kHz (step 0.1 kHz)  
**RDS level 57 kHz:** from 0 to 100% (step 1 %)  
**RDS BER level:**

### IP PORT

**Protocol:** TCP/IP  
**Port type:** Ethernet RJ45, 10/100 Mbps  
**Communication type:** HTTP and SNMP

### MP3 STREAMER

**Bitrate:** ≤ 192 Kbps  
**Protocol:** TCP/UDPGeneral  
**Main power:** 100 to 240 VAC, 50 to 60 Hz,  
**Power consumption:** maximum 45 Watt  
**Power connection:** IEC plug filter with fuse 2.5 AT  
**Headphones connection:** Stereo jack 6.3 mm  
**Safety and EMC:** In accordance to CE regulations  
**Operation ambient temperature:** 5 to 45 °C (storage -5 to 65 °C)  
**Housing dimensions:** 19 inch x 1u x 300 mm (depth)  
**Weight:** 5 kg

### AVAILABLE SFD MODEL/OPTIONS

**SFD-IP:** FM Rebroadcast receiver  
**Option: MP3 Streamer:** MP3 Streamer output  
**Option: IRT-TR-5/3.5:** Specifications according German IRT "Technische Richtlinie 5/3.5" & 5/1.0 Teil 3 SNMP requirements

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All specifications subject to change. Printed in Canada. 03/08.

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