

**1RU / 19" easily configurable 6-channel 4-wire
4-IFB talkback unit**

1FB246 1 0100 48 00

Annotation:

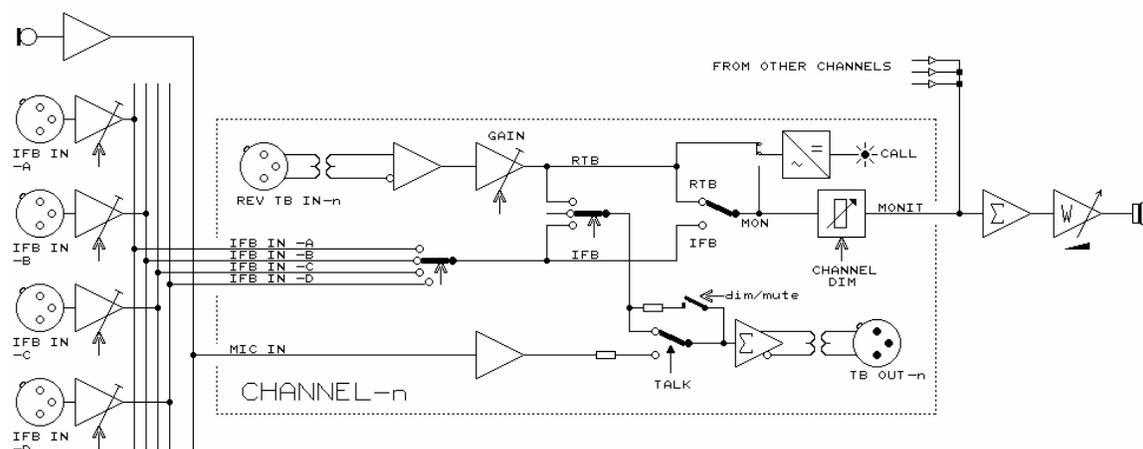
The **1FB246** talkback unit provides six channels of full-duplex 4-wire communication for small studios or broadcast vehicles. The unit provides four **IFB** (Interrupted Fold Back) inputs. The unit offers great variability where IFB operation is required. All line inputs and line outputs are balanced and transformer isolated. Gain is adjustable on all inputs. It is possible to monitor all input lines (and / or mix them into a reproducing amplifier).

The command buttons are illuminated. They operate either in **PTT** Push-to-Talk (momentary) mode or in **HOLD** (latching) mode. It is possible to use a gooseneck microphone and a built in speaker (or an external speaker) or a headset. The **1FB246** unit's control elements are on its front panel, the unit it is easily configurable for different demands of the user. Almost all of the settings can be done through navi-keys and the LCD display. The unit fits into a 1RU 19" rack space. It is powered by 230V~/50 Hz.



Operation and control of 1FB246:

Talkback unit **1FB246** provides six identical channels. XLR connectors of 4-wire input and output are placed on the back panel of the unit. Following diagram shows a single channel simplified schematic. Switches configured via navi-keys and LCD display are marked by hollow arrows.



Incoming Call from **REV TB IN-n** (REVERSE TALKBACK INPUT) is fed into a **RTB/IFB** lever switch. This switch enables the user to monitor either the **REV TB** line or the **IFB** line routed to this channel. Volume contribution is controlled through the **MON** potentiometer.

One of these presets (**IFB** lines or reverse talkback **RTB** or silence) can be sent to **TB OUT-n** when the unit is idle. When a command comes from **1FB246** unit, idle modulation is either dimmed or interrupted (according to the pre-settings) and **TALK** signal from a microphone is fed to output.

The outgoing command buttons are illuminated. A longer depression of the button activates **PTT** (Push to Talk) mode; while pushing the button the operator can talk, LED in the button turns on. Releasing the button ends the command, LED turns off.

A short depression of the button activates the **HOLD** mode, a command route is selected, LED turns on. The operator can talk with free hands. Next depression of the button cancels the connection, LED turns off.

A green "CALL" LED announces an incoming call. Internal jumper sets the "CALL" LED to indicate either a **REV TB IN-n** input or pre-set of the **RTB/IFB** switch. Default setting is **RTB**.

Each of the channels is individually configurable. The configuration is automatically stored in the nonvolatile memory.

Common functions for all channels:

The **GROUP TALK** button issues commands to all outputs.

The **MIC/HS** switch selects between a gooseneck microphone + loudspeaker or a headset (5-pole XLR connector). Selecting the headset switches off internal speaker. Inserting jack into the PHONES socket switches off the internal speaker. Inserting jack into back panel  socket switches off internal speaker as well.

The TALK potentiometer adjusts output signal level. Two LEDs indicate the **0 dBu** and **+8 dBu** levels.

The volume control of the monitored signal mix is on the right side of the front panel. Above this knob there is an illuminated button for the loudspeaker cut function. The button lights red when the loudspeaker is off. The reproducing amplifier is dimmed if there is an outgoing command. The level of the dimming is adjusted through the **LS DIM** potentiometer.

Configuration setting:

- The **1FB246** unit configuration setting interface is a three row LCD display and five navi-keys.

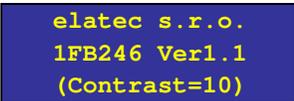
The display shows a few types of configuration screens or informative messages.

Mid key **O** activates next configuration screen.

Keys **<** or **>** serve for selecting following or previous item.

Keys **+** or **-** serve for editing the selected value.

- After power on an invitation message is displayed for 1,5 seconds:



```
elatec s.r.o.  
1FB246 Ver1.1  
(Contrast=10)
```

While displaying this message depression of the **+** or **-** keys sets the LCD display contrast.

- The main screen is displayed after 15 seconds from last depression of a key. It informs about current state and activities of individual channels of the **1FB246** unit:

```

1A IFB  2B ---
3D IFB  4A RTB
5A MICm 6C MICd

```

Blue number on a yellow background indicates the channel number. It is followed by a letter **A**, **B**, **C** or **D**, which represents the **IFB** input assigned to this channel. Next group of letters indicates the type of signal, which is sent to the channels output:

IFB indicates that Interrupted Fold Back is being sent to the output.

RTB indicates that Return Talkback is being sent to the output.

--- indicates that silence is being sent to the output.

MIC indicates that a command from mic amplifier is being sent to the output. The lower-case **m** letter indicates that idle signal is muted. The lower-case **d** letter indicates that idle signal is dimmed (-10 dB approx.).

- Depressing the mid key **O** activates the configuration screen of channel 1:

```

1 Ch1 Gain=-12dB
  Snd=IFBdim IFB=A
  Mon.Dim=0 (off)

```

Blinking cursor indicates the edited item. If the cursor is positioned on the channel number behind the letters **Ch**, pressing of the **+** or **-** keys changes the channel number.

By pressing the **<** or **>** keys the user can move the cursor to the desired item.

Gain= represents the value of gain of input line amplifier for indicated channel. Using the **+** or **-** keys the user can set the gain from -12 dB to +12 dB with 4 dB step.

Snd= represents the idle signal sent to output. Using the **+** or **-** keys the user can set the following values: --- (silence), **IFBdim**, **IFBmute**, **RTBdim**, **RTBmute**.

IFB= represents the selected IFB input. Using the **+** or **-** keys the user can list between **A**, **B**, **C**, **D** inputs.

Mon.Dim= represents the dimming for a given channel that is activated during a simultaneous bidirectional call. The monitor dimming is only effective in case of a command to the channel output while at the same time the **RTB** input is monitored. The purpose of this is to prevent an acoustic feedback. There is a possibility to preset this dimming, because the acoustic properties of channel station are not known in advance. Monitor dimming has 6 default values:

0(off), **1**, **2** ... **6(max)**.

This way the user is able to preset all of the six channels.

- By depressing the central key in the 6-th channel configuration screen the IFB input gain configuration screen is displayed:

```
IFB Gain= [dB]
A=  B=  C=  D=
0  -12 +4  +12
```

Blinking cursor marks the edited value. By using the **+** or **-** keys the user can set the input IFB gain from -12 dB to +12 dB with step 4 dB.

- By depressing the central key the main screen is displayed:

```
1B RTB  2D ---
3C IFB  4B MICm
5A ---  6B MICd
```

- After 10 seconds, since last editing, changed values are automatically stored in nonvolatile memory. For a period of 1 second a "configuration saved" message is displayed:

```
Configuration
saved
```

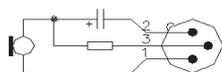
- Cursor location for a given screen type is stored in memory. After repeated displaying or moving on to next channel the user can edit the same item.

Description of the common circuits:

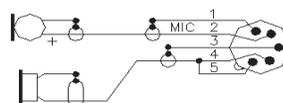
Signal from the microphone is amplified by a mic-preamplifier then it is filtered and processed in compressor/limiter circuitry and fed into a TALK bus. The **MIC/HS** switch selects the 3-pole XLR connector for a gooseneck microphone or 5-pole XLR connector for a headset. The **MIC/HS** switch selects the trimmers for gain setting as well. Gains for gooseneck and headset mics are trimmed independently.

The headset microphone can be of a dynamic or electret type. By switching on the jumper on the main-board we feed polarization voltage into the headset connector. The gooseneck microphone is of a gradient type which enables higher loudness in full-duplex communication. The rumble filter in mic-preamps raises the intelligibility in noisy environments. Trimmers for setting **NOISE GATE** and talk signal levels are on the main-board. The trimmers are accessible after taking off the top cover.

The following figure represents a gooseneck microphone and a headset circuit diagrams:



GOOSENEC MIC



HEADSET

The **TALK** potentiometer controls the level of signal which is sent to 4-wire outputs. The **0 dBu** and **+8 dBu** LEDs indicate the output line signal levels. The **TALK** signal is present steady on the back panel **MIC OUT** XLR-connector .

The ◀ potentiometer controls the level of mixed monitor signals. Reproducing amplifier is provided with circuits for gain control (to avoid acoustic feedback in case a of full-duplex communication). The **DIM** potentiometer controls the level of dimming. The **LS CUT** locking action button mutes the loudspeaker, when in MUTE mode LED lights red. The loudspeaker connected to output of the reproducing amplifier switches off by either switching the **1FB246** unit to headset operation, or by inserting the headset jack into the front panel connector, or by inserting external loudspeaker jack into the back panel connector.

Simultaneously, when a command is issued to a channel an adequate tally is issued. When the given channel's optically-coupled-MOS is switched on, TALLY-n is activated. Tallies are fed to back panel 9-pin Dsub connector.

Specifications:

Reference level : +4 dBu = 1,23 V
 Reference frequency : 1 kHz

Signal chain :

Nominal signal level + 4 dBu
 Frequency response 100 Hz ÷ 10 kHz ± 3 dB
 Noise $R_g = 600 \Omega$ A - curve < -60 dB
 THD+N at + 4 dBu, 100 Hz ÷ 10 kHz ≤ 0,5 %

Inputs :

Transformer isolated, balanced XLR - Female
 Input Impedance (20 Hz ÷ 20 kHz) > 10 k Ω
 Common Mode Rejection (at 10 kHz) > 66 dB
 Input Gain Adjusting (1 kHz) ± 12 dB, step 4 dB

Outputs :

Transformer isolated, balanced XLR - Male
 Output Impedance (20 Hz ÷ 20 kHz) $R_{OUT} < 150 \Omega$
 Output symmetry (at 10 kHz) > 45 dB

Tally :

Output tallies TALLY-1 ... -6 Opto-MOS 48 V_{max}, 100 mA_{max}, 35 Ω _{max}

Power :

AC Line 230 V~/ 50 Hz
 Consumption < 40 VA

Other :

Ambient Temperature + 5 až 45 °C
 Dimensions (H x W x D) 1RU x 19" x 375 mm

