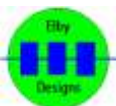


MIDI-IFG MIDI-RS232-RS485 Interface Unit



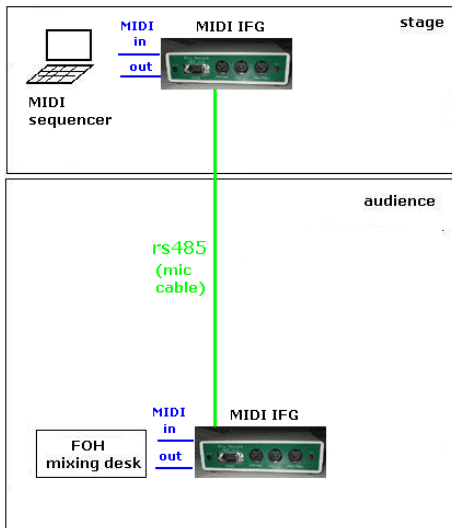
MIDI-IFG – RS232/RS485/MIDI Converter Release V1.1



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MIDI-IFG MIDI-RS232-RS485 Interface Unit

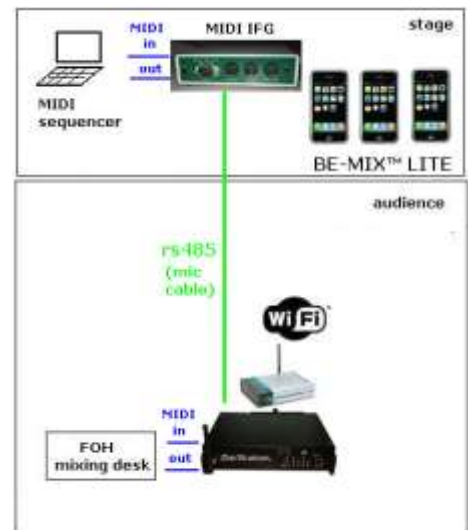
Introduction



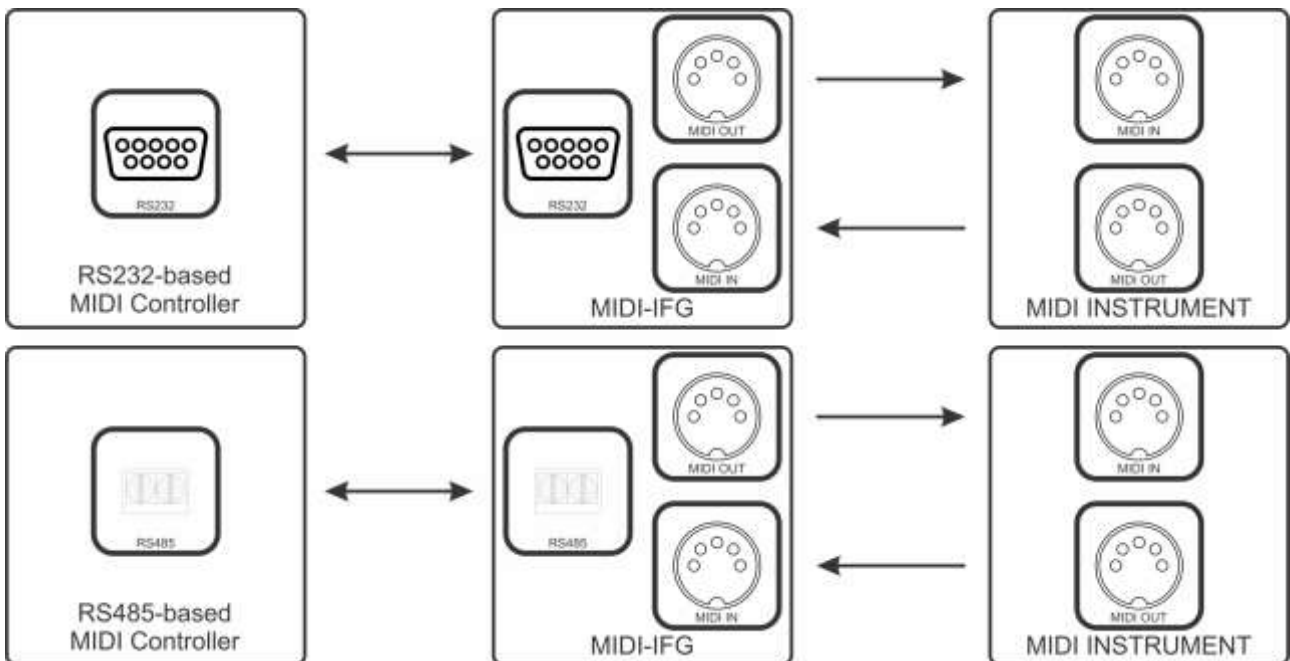
The MIDI-IFG is a serial media converter allowing conversion between MIDI, RS232 and RS485.

As a communication media RS485 allows for substantially longer cable runs(300m/1000ft) than RS232 (25m/75ft) and MIDI(7m/25ft).

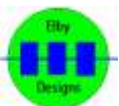
The drawing to the left shows a typical application for the MIDI-IFG where a front-of-house mixing desk is connected to a MIDI Controller.



Combining a MIDI-IFG with the power of a Be-Station provides for even greater communications flexibility. In the drawing to the right a Be-Station is connected to the front-of-house mixing desk with the MIDI-IFG connected, via, RS485 to the MIDI Controller as before. The addition of a Wif-Fi access point to the Be-Station then allows for additional, wireless control, of the mixer from up to 7 Wi-Fi based controllers such as iPods running the Be-Mix Lite application.



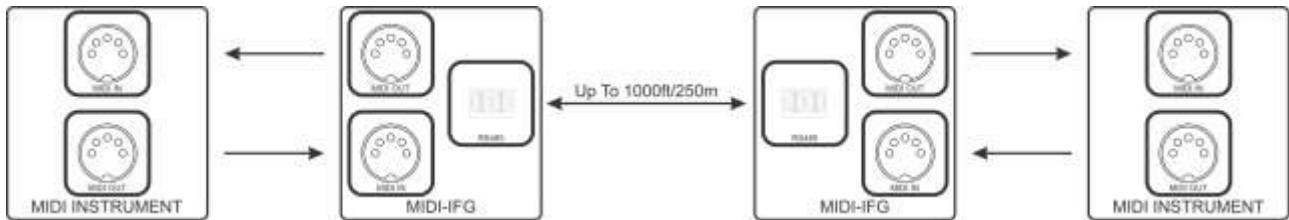
Typical applications of the MIDI-IFG for RS232 and RS485 interfacing.



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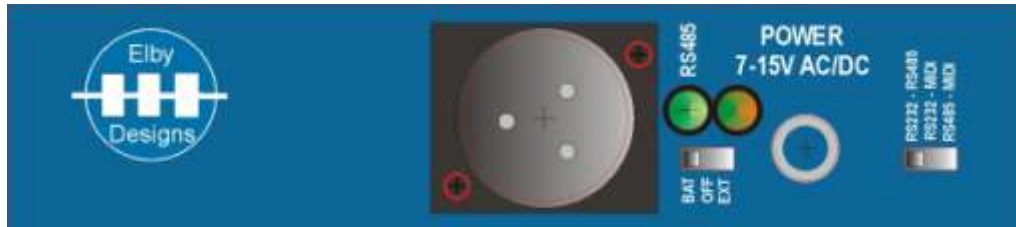
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MIDI-IFG MIDI-RS232-RS485 Interface Unit



The MIDI-IFG can also be used as a MIDI Extender providing for up to 1000ft separation.

Setting-Up and Operation



MIDI-IFG Rear Panel

Firstly you must provide power. This can either be through:-

1. an external adaptor. This can be either a DC adaptor with an output voltage in the range 9VDC to 15VDC and rated to at least 100mA, or an AC adaptor in the range 6VAC to 12VAC. Higher voltages for both DC and AC maybe used but the user should be aware that this will increase the heat dissipation of the internal voltage regulator in the MIDI-IFG. The power lead should be terminated with a 2.5mm DC Power plug. Polarity of the plug when using a DC adaptor is not important as the MIDI-IFG will auto-rectify the polarity of any plug fitted, or
2. you may fit 6 AA batteries internally.

The power switch on the rear of the unit has 3 positions:-

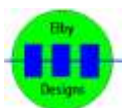
1. EXT – turns power ON to the unit using an external power adaptor.
2. OFF – turns power OFF to the unit
3. BAT – turns power ON to the unit using the internal battery supply.

NOTE: The current release of units have the power switch reversed i.e. EXT is actually BATTERY and BAT is actually EXTERNAL.

The POWER LED on the rear panel provides a visual indication of the status of the power to the unit. Although it works fully with EXTERNAL power (should be permanently green), it is fundamentally intended as a status indicator for when the BATTERIES are being used.

The POWER LED has four main indicator states:-

1. Green – power to the unit is in excess of 8.4V. This usually indicates an external power source or a fresh set of batteries have been installed



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MIDI-IFG MIDI-RS232-RS485 Interface Unit

2. Red – power to the unit is between 6.0V and 7.0V. This is the `drop-out' zone. When the Power LED is this colour the unit is still fully operational although the power level is getting close to the point when the internal regulator circuit may stop regulating properly.
3. Flashing Red – power to the unit is in the range 5.0V to 6.0V. A Red indicator pulsing on and off indicates that the power to the unit is below the drop-out threshold and that the internal regulator is no longer able to maintain reliable regulation. This may result in the micro-controller receiving insufficient power to operate correctly and could result in the micro-controller latching up. The batteries should be replaced promptly to ensure continued operation of the unit
4. Between 7.0V and 8.4V the POWER LED will change from Red through Orange to Green to indicate the progressive change in voltage.

Below 5.0V the unit will go in to a shutdown mode to prevent the possibility of false transmissions.

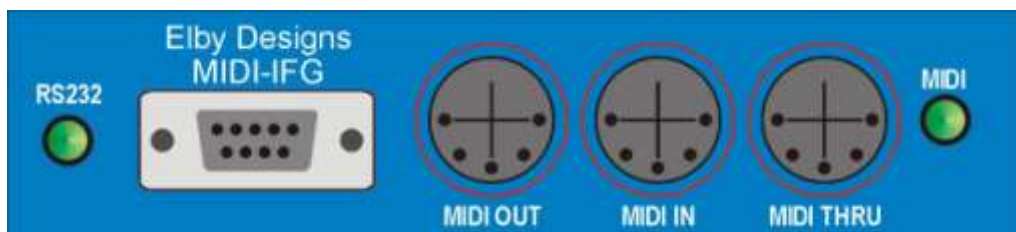
We recommend the use of alkaline batteries. Rechargeable batteries may be used but users should be aware that:-

1. MIDI-IFG does not provide any recharging function for batteries
2. the POWER LED indicator will operate slightly differently from as described above due to the differing discharge profile of rechargeable batteries. Consequently you may not be able to use the POWER LED to determine the power status of rechargeable batteries
3. do not mix battery types

The second switch on the rear of the unit defines which two of the three available ports are linked together. The options are:-

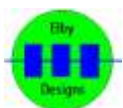
1. RS232 – MIDI
2. RS232 – RS485
3. RS485 – MIDI

The user should ensure that the correct position is selected and that the appropriate cables are fitted in to the relevant sockets. This switch can be adjusted while power is ON.



MIDI-IFG Front Panel

The MIDI-IN, MIDI-THRU, and MIDI-OUT sockets are standard MIDI compliant connectors and should be connected to the appropriate points on your MIDI equipment.



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MIDI-IFG MIDI-RS232-RS485 Interface Unit

The RS232 connector is a DB9 (male) connector. For connection to a controller such as a PC you will need a (full) NULL-MODEM cable. The default baud rate is 38,400 although an internal dip-switch may be used to select alternate baud rates (see table below).

The RS485 connector is a 3-pin female XLR. The default baud rate is 57,600 although an internal dip-switch may be used to select alternate baud rates (see table below).

To adjust the baud rate (and to replace batteries) you should remove the 2 fixing screws in the underside of the case (use a Phillips No.1 screwdriver). Carefully tease the two case halves apart noting the orientation of the two case parts. The 2 dip-switches for setting the baud rates can then be accessed as can the battery packs.

When done, re-assemble the case taking special note of the orientation of the case halves and making sure that none of the cables get trapped.

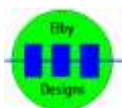
Baud rate settings for RS232:-

1	2	3	Baud Rate	Comments
OFF	OFF	OFF	19200	NOT RECOMMENDED
ON	OFF	OFF	38400	Factory Default
OFF	ON	OFF	57600	
ON	ON	OFF	115200	
OFF	OFF	ON	128000	
ON	OFF	ON	230040	
OFF	ON	ON	38400	
ON	ON	ON	38400	

Baud rate settings for RS485:-

1	2	3	Baud Rate	Comments
OFF	OFF	OFF	19200	NOT RECOMMENDED
ON	OFF	OFF	38400	
OFF	ON	OFF	57600	Factory Default
ON	ON	OFF	115200	
OFF	OFF	ON	128000	
ON	OFF	ON	230040	
OFF	ON	ON	250000 (DMX)	
ON	ON	ON	38400	

Although these switches can be adjusted with power ON it is recommended that the unit be powered OFF and, if connected, the DC/AC power plug removed. With the case open, we recommend disconnecting the battery connector to reduce the risk of damage to the board. Remember to re-fit the connector when re-assembling the unit.



MIDI-IFG MIDI-RS232-RS485 Interface Unit

Communication Activity LEDs are provided alongside each connector and indicate when data is being received on that port.

With the unit correctly configured (power source connected, at least 2 communication cables fitted, communication port linker position selected and baud rates for RS232 and RS485 set) turn on the power switch. The unit will sequentially pulse each Communication Activity LED to indicate a successful power-up condition and will then set the POWER LED to indicate the status of the selected power source.

The unit is now ready for operation.

MIDI Support

The MIDI-IFG applies operates in what we term as Smart Mode. In this mode the MIDI-IFG analyses all incoming MIDI messages before passing them onto the output port. This mode of operation helps maintain more reliable operation by ensuring that only complete and valid MIDI messages are passed through. Any incomplete or invalid messages are simply discarded.

SYSEX Messages

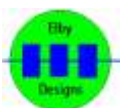
The current revision of MIDI-IFG does not support SYSEX messages and these will simply be ignored if received.

Running Status

The current revision of MIDI-IFG does not support Running Status so you should that this feature is disabled on any MIDI Controller that is used.

Half Duplex

Due to the nature of the RS485 connection the MIDI-IFG operates in half-duplex mode. In this mode the MIDI-IFG will, at any one moment in time, either receive OR transmit a MIDI message. It cannot do both at the same time. In most MIDI systems that is the normal mode of operation.



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