

# User's Manual

**Model** FIX-3.2GX Control Board

## History

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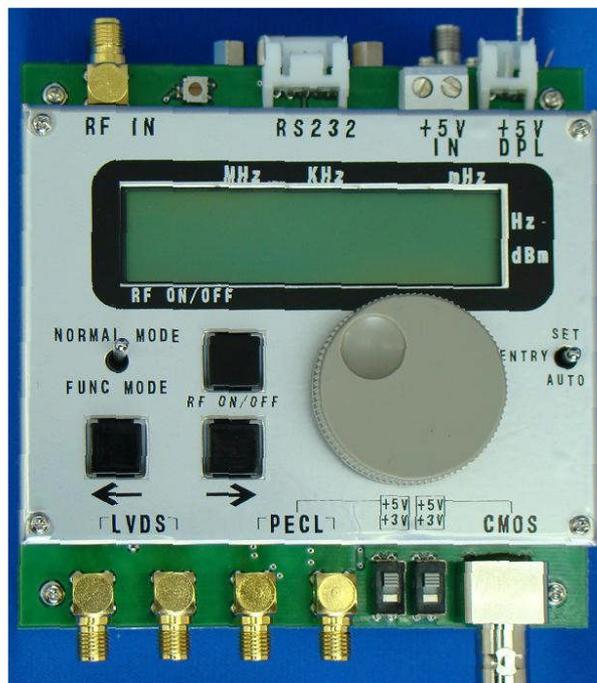
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## 1. Outline

The FIX-3.2GX is an optional board to set the DDS-PLL synthesizer “DPL-3.2GXF.” Since it can be mounted over the DPL-3.2GXF, a signal generator included with a compact controller can be formed. The LCD and encoder on the board enable making of various settings, such as frequency, amplitude, and RF ON/OFF. Also, the board is equipped with level converters for CMOS, differential PECL, and differential LVDS, which are convenient as a logic circuit clock source.



## 2. Specifications

(1) Power supply voltage	5V - 7V
(2) Consumption current	
FIX-3.2GX alone:	400mA or less
When connected with DPL-3.2GXF:	1900mA or less
(3) Level converter input level	
5 - 3200MHz	Output of DPL-3.2GX is set at +10dBm.
(4) CMOS level converter	
Operating frequency range:	5MHz - 100MHz
Output connector:	BNC
Load impedance:	50 $\Omega$ load drive possible
Output level:	CMOS (Caution 1) Switchable by 3V and 5V
(5) LVDS level converter	
Operating frequency range:	5MHz - 3200MHz
Output connector:	SMA-J
Load impedance:	Differential 100 $\Omega$
Output level:	LVDS (Caution 1)
(6) PECL level converter	
Operating frequency range:	5MHz - 3200MHz
Output connector:	SMA-J
Load impedance:	Differential 100 $\Omega$
Output level:	PECL (Caution 1) (Caution 2) Switchable by 3V and 5V

(Caution 1) Other-than-specified (+10dBm) frequencies and output levels may cause unstable operation of the LVDS, PECL, and CMOS output sections.

(Caution 2) The PECL level output sections are DC-cut when factory-shipped.

### 3. Contents of package

(1) FIX-3.2GX body	×1
(2) Coaxial cable	×1
(3) RS232C connection cable	×1
(4) Power supply cable to DPL-3.2GXF	×1
(5) User's manual (this book)	×1
(6) Screw M2×5 (sems)	×4
(7) Stud M2×5 (male - female)	×4

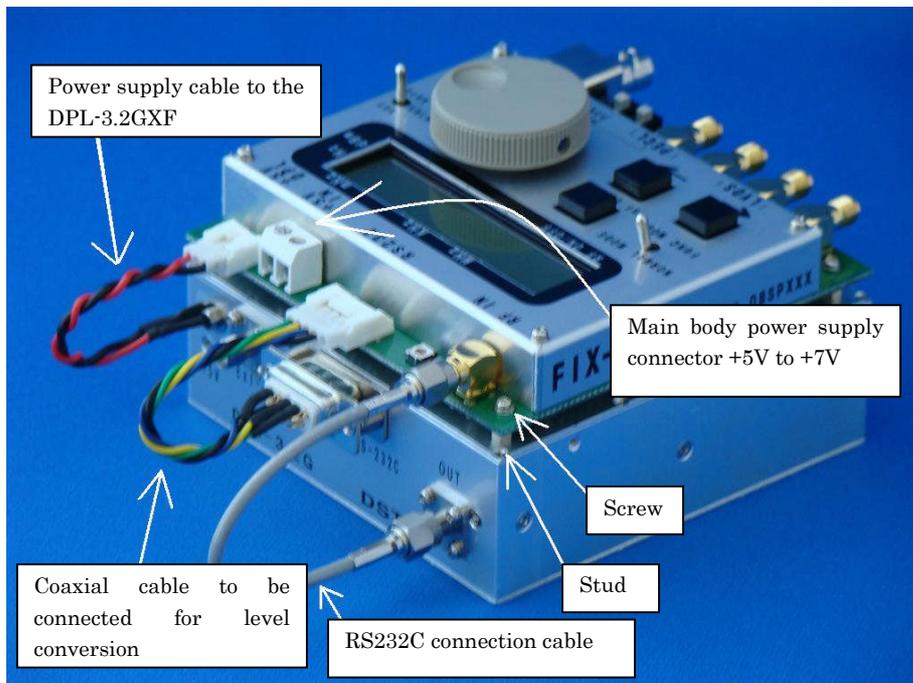
### 4. Connection with DPL-3.2GXF

The following cables are attached to the optional board.

If you have purchased the FIX-3.2GXF separately, connect them by following the procedures.

- (1) Power cable
- (2) SMA connector (double-ended) coaxial cable
- (3) RS-232C cable

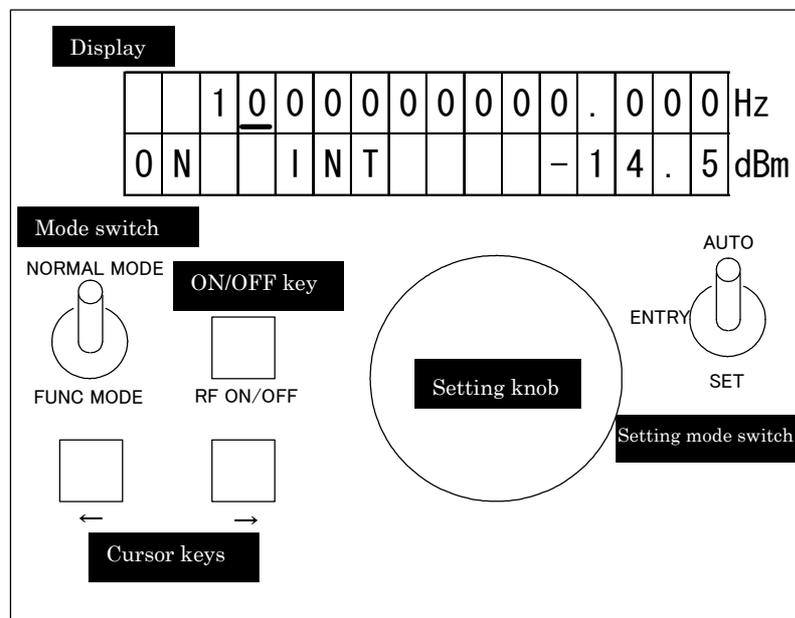
Connect the cables as shown in the photograph below.



## 5. Functions

- (1) Frequency setting
- (2) Amplitude setting
- (3) RF output ON/OFF
- (4) Saving of frequency and amplitude
- (5) Switching of reference signal (internal  $\leftrightarrow$  external)
- (6) Fine adjustment of internal reference signal
- (7) Level conversion of CMOS, PECL, and LVDS

## 6. Names and functions of keys and switches



### (1) Cursor keys

- Move the cursor to the desired frequency and amplitude with the cursor keys.
- Select the desired item.

### (2) Setting knob

- Set a numerical value for frequency, amplitude, and phase offset.
- Select the desired menu.

### (3) Mode switch

Select NORMAL MODE or FUNCTION MODE.

(4) Setting mode switch

Select a frequency and amplitude setting mode (AUTO, ENTRY, or SET).

(5) ON/OFF key

- Switch ON/OFF of the RF output.
- Use to determine a function.

7. How to set frequency and amplitude

Set the mode switch to “NORMAL MODE.”

(1) AUTO mode

Set the setting mode switch to “AUTO.”

- Move the cursor to the desired frequency and amplitude with the cursor keys.
- Set a numerical value by turning the setting knob.
- The frequency and amplitude are reflected in the output at the same time as the setting.

That is, the output changes continuously according to the turning of the setting knob.

(2) ENTRY mode

Set the setting mode switch to “ENTRY.”

- Move the cursor to the desired frequency and amplitude with the cursor keys.
- Set a numerical value by turning the setting knob.
- The set value is not reflected in the output while the frequency and amplitude are being set.

For reflecting in the output after completion of setting of the frequency and amplitude, set the setting mode switch to “SET.”

(The lever is not fixed at the “SET” position but self-returns to the “ENTRY” position.)

- Push the setting knob, and you will go return to the currently-output set value.

8. Various settings

- Set the mode switch to “FUNC MODE.”
- Select the desired setting menu by turning the setting knob.

(1) Saving of frequency and amplitude

The current frequency and amplitude are saved.

S	A	V	E											
	O	N	/	O	F	F		K	E	Y				

Execute saving with the ON/OFF key.

When saving ends, “DONE” is displayed. Do not turn off the power until this display appears.

S	A	V	E												
												D	O	N	E

(2) Switching of reference signal source

- Set the setting menu to “CLOCK SOURCE” by turning the setting knob.

C	L	O	C	K		S	O	U	R	C	E			
*	I	N	T			E	X	T						

↙ Selection mark

“INT” indicates internal reference signal, and “EXT” indicates external reference signal.

Set the selection mark “\*” to the desired signal by pushing the cursor key(s), and determine it by pushing the ON/OFF key.

The determined reference signal source is automatically saved.

The current reference signal source can be confirmed in “NORMAL MODE.”

		1	0	0	0	0	0	0	0	0	.	0	0	0	Hz	
0	N			I	N	T					-	1	4	.	5	dBm

Reference signal source  
 INT: internal signal  
 EXT: external signal

(3) Power-on RF ON/OFF setting

Set whether to turn ON or OFF the RF output at power-on. (Caution 3)

- Set the setting menu to “POWER ON RF OUT” by turning the setting knob.

P	O	W	E	R		O	N		R	F		O	U	T	
*	O	N				O	F	F							

Selection mark

Set the selection mark “\*” to the desired side by pushing the cursor key(s), and determine it by pushing the ON/OFF key.

The determined setting is automatically saved.

(Caution 3) Keep in mind that the current RF output is not turned ON/OFF by this function.

(4) Fine adjustment of internal reference signal

Make fine adjustment of the frequency of the internal reference signal (10MHz).

- Set the setting menu to “INT CLOCK ADJUST” by turning the setting knob, and push the ON/OFF key.

I	N	T		C	L	O	C	K		A	D	J	U	S	T
	P	U	S	H		O	N	/	O	F	F		K	E	Y

Since the frequency increases/decreases according to the cursor keys, make adjustment while checking with the frequency counter, etc.

By pushing the ON/OFF key, the setting is reflected and automatically saved.

<	-		U	P			D	O	U	N		-	>		
	O	N	/	O	F	F		K	E	Y		S	A	V	E

(5) External clock synchronizing function ON/OFF setting

Set whether to turn ON or OFF the external clock synchronizing function.

(Caution 4)

- Set the setting menu to “CLOCK SYNCHRO” by turning the setting knob.

C	L	O	C	K		S	Y	N	C	H	R	O			
*	O	N				O	F	F							

 Selection mark

Set the selection mark “\*” to the desired side by pushing the cursor key(s), and determine it by pushing the ON/OFF key.

The determined setting is automatically saved.

The current state of the synchronizing function can be confirmed in “NORMAL MODE.”

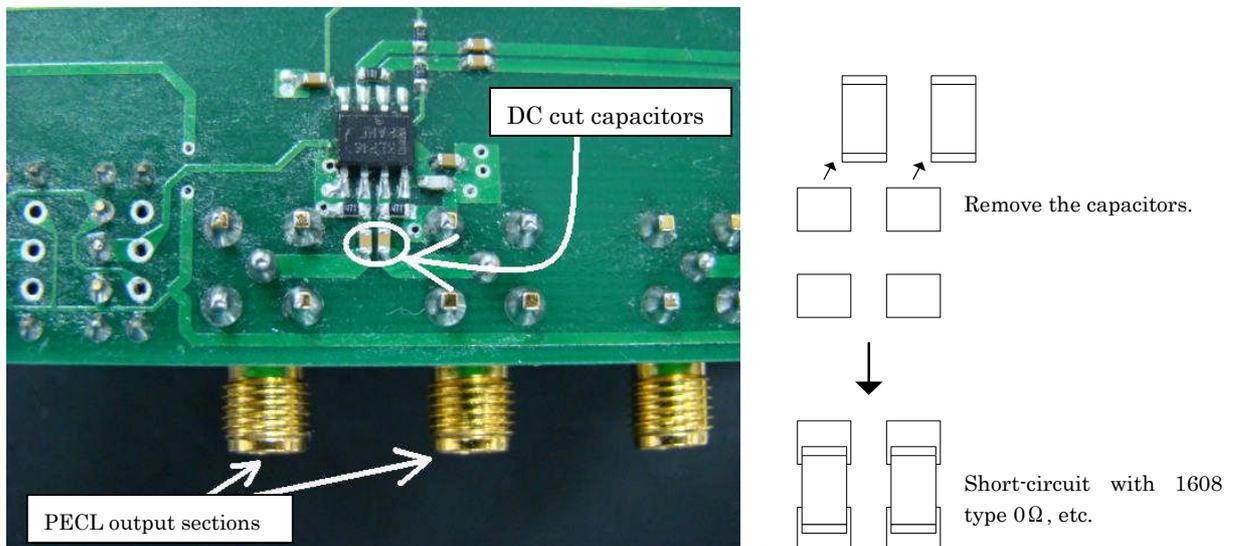


After setting, exit the setting mode by pushing the ON/OFF key.  
At completion of the setting mode, the cursor disappears.

(Caution 5) Use of the phase offset function by the internal clock is irrelevant because of synchronization with the internal clock.

### 9. Modification of PECL output

In the case where DC components are needed, short-circuit each DC cut capacitor by referring to the photograph below.



## 10. Precautions for handling

Use a lower-rippling power supply. When using a switching power supply, use an appropriate noise filter.

This product is DPL-3.2GXF-specific. Keep in mind that it cannot be used with DPL-3.2GF.

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