

GUI TRF3765

The basic requirement of the GUI TRF3765 is to communicate to the TRF3765 device. The GUI also handles calculation and sets the required values for the entered frequency. The user can manually manipulate the values to check the settings.

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1 Getting Started

A compact disc (CD) contains the files necessary to install the GUI and the required components. The following steps describe the GUI installation.

1.1 Installation Guide

1. Insert the CD, and locate the volume folder where the installer file is located.

Name 🔺	Size	Туре	Date Modified		
🛅 bin		File Folder	2/11/2011 4:43 PM		
🛅 license		File Folder	2/11/2011 4:37 PM		
aupportfiles		File Folder	2/11/2011 4:43 PM		
🖬 nidist.id	1 KB	ID File	2/11/2011 4:43 PM		
🚚 setup.exe		Application	6/22/2010 10:37 AM		
🧿 setup.ini		Configuration Settings	2/11/2011 4:43 PM		
6 objects				1.22 MB	😼 My Computer 🔢

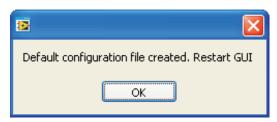


- 2. Double-click the setup.exe file, and the installation starts immediately.
- 3. Follow the steps, read, and agree to the License information. Select the location of the file.
- 4. The installation takes a few minutes to complete. After completion, click *Finish*.

1.2 Start the GUI Execution

The following path begins the GUI execution. Start \rightarrow All Programs \rightarrow TRF37XX \rightarrow TRF37XX.exe

The first time the software starts, it creates a configuration file (TRF3765.ini) for the GUI. It pops up a window similar to the following inset. The user needs to click *OK*, and restart the GUI from the same location.



The GUI then appears.

2 GUI Options and Pages Available

2.1 Start the GUI Execution

The GUI by default points to the start-up page, i.e., Device Communication.

	AS			0.7					
	TRUMENTS		TRF37xx						
	Start Up		High Level	Low Level	Debug				
Device	Communication								
	ulate Communication								
6	Connect	Disconnect	Reset USB						
Loa	d Default Configuration								
Cliff bas	two ways to tool the device	u (Sub (and Text and (and fact Both of them a	chines the same summers					
			<i>ow Level Test.</i> Both of them a	chieve the same purpose.					
High Leve	: two ways to test the device of Test: Uses the high level fu of Test: Directly control the re	nctions to configure th	e device during the test.	chieve the same purpose.					
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High Leve Low Leve Each conf he <i>High L</i>	el Test: Uses the high level fu el Test: Directly control the re figuration at the <i>High Level</i> Level Test area. If the user s	nctions to configure the gisters of the device du <i>Test</i> also sets the bits o tarts the test from <i>High</i>	e device during the test. uring the test. of the related registers in the <i>h Level Test</i> , the test can be s	chieve the same purpose. <i>Low Level Test</i> . This is not vice versa; the confi witched to <i>Low Level Test</i> without the need t					
<i>ligh Leve ow Leve</i> ach conf ne <i>High L</i> arts fror	el Test: Uses the high level fu el Test: Directly control the re figuration at the <i>High Level</i>	nctions to configure the gisters of the device du <i>Test</i> also sets the bits o tarts the test from <i>High</i>	e device during the test. uring the test. of the related registers in the <i>h Level Test</i> , the test can be s	Low Level Test. This is not vice versa; the confi					
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Options available on the start-up page:



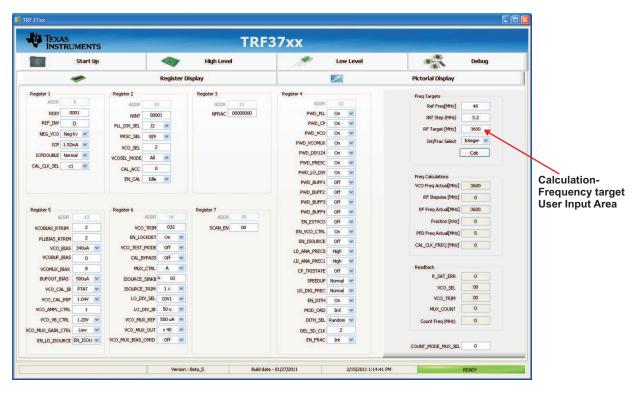
- Simulate Communication When enabled and connected, it simulates the communication between the GUI and the device.
- **Connect** Connect to the device and in the case of simulation, simulates the connection. Every time the GUI or device is restarted (powered down and up again), the connection needs to be established.
- **Disconnect** Disconnecting the connection before closing the GUI is mandatory.
- Reset USB Reset the connection between the device and the GUI.
- Load Default Configuration When enabled, it asks the user for the default configuration file. By default, the GUI points to a file. This needs to be turned ON/OFF before connecting to the device

NOTE: The GUI does not allow the user to navigate to another tab when the device is unconnected.

2.2 High Level – Register Display

The High Level tab has all the register information. The user can manipulate the register settings as required, and the corresponding values are written into the registers.

The user can see registers 1 through 7 and the fields which the user can set. Frequency Targets also are visible.

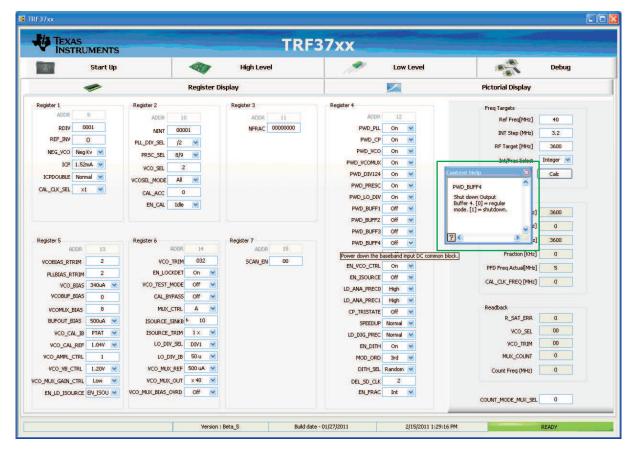




Options available in this page:

- Calculation Frequency Targets The user is able to specify requirements like:
 - Reference: Frequency
 - RF Step Size
- RF Target
- Integer/Fractional Mode
- Press CALC to calculate and set the registers so as to program as per the user inputs.
- Frequency calculations Indicates the actual set components
- Read back Reads the register 0 and displays the fields like:
 - R SAT ERR
 - VCO SEL
 - VCO TRIM
 - MUX Count
 - Counter Frequency
- Registers The user can set any value for the register by just changing the value available.

CTRL + H



Automatic Tip Strip

GUI TRF3765

NOTE: Press *CTRL* + *H* to display a small description parallel to the GUI. The GUI also provides a tip when the mouse moves over a control.

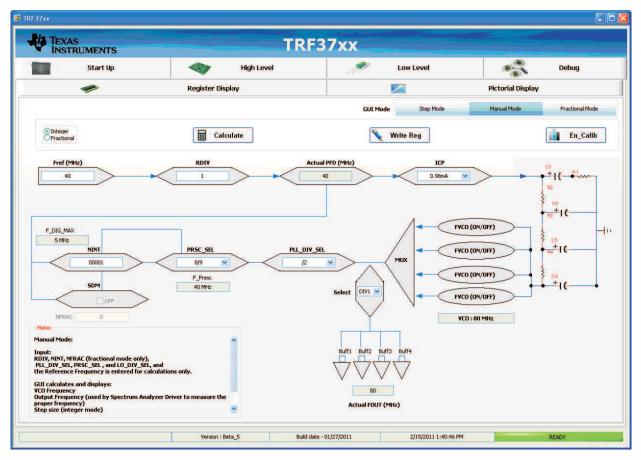


TRF37xx							
Start Up		High Level	Low Level	Debug			
	Register Di	isplay		Pictorial Display			
Register 1	Register 2	Register 3	Register 4	Freq Targets			
ADDR 9	ADDR 10	ADDR 11	ADDR 12	Ref Freq[MHz] 40			
RDIV 0001	NINT 00001	NFRAC 00000000	PWD_PLL On 💌	INT Step (MHz) 3.2			
REF_INV 0	PLL_DIV_SEL /2 💌		PWD_CP On 💌	RF Target [MHz] 3600			
NEG_VCO Neg Kv 💌	PRSC_SEL 8/9 💌		PWD_VCO On 💌	Int/Frac Select Integer 💌			
ICP 1.52mA 💌	VCO_SEL 2		PWD_VCOMUX On				
ICPDOUBLE Normal	VCOSEL_MODE All		PWD_DIV124 On V PWD PRESC On V	Calc			
CAL_CLK_SEL X1 💌	CAL_ACC 0		PWD_LO_DIV On V				
	EN_CAL Idle 💌		PWD_BUFF1 Off V	Freq Calculations			
			PWD_BUFF2 Off V	VCO Freq Actua[MHz] 3600			
			PWD_BUFF3 Off V	RF Stepsize [MHz] 0			
Register 5	Register 6	Register 7	Power down the frequency divider in the mo	RF Freq Actual[MHz] 3600			
ADDR 13	ADDR 14	ADDR 15	EN_EXTVCO OFF	Fraction [KHz] 0			
VCOBIAS_RTRIM 2	VCO_TRIM 032	SCAN_EN 00	EN_VCO_CTRL On 💌	PFD Freq Actua[MHz] 5			
PLLBIAS_RTRIM 2	EN_LOCKDET On		EN_ISOURCE OFF	CAL_CLK_FREQ [MHz] 0			
VCO_BIAS 340uA VCOBUF_BIAS 0	VCO_TEST_MODE Off		LD_ANA_PREC0 High 💌				
	CAL_BYPASS OFF		LD_ANA_PREC1 High 💌	Readback			
VCOMUX_BIAS 8			CP_TRISTATE Off 💌	R_SAT_ERR 0			
BUFOUT_BIAS 500UA V			SPEEDUP Normal M	VCO SEL 00			
VCO_CAL_IB PTAT VCO_CAL_REF 1.04V	ISOURCE_TRIM 1 × × LO_DIV_SEL DIV1 ×		LD_DIG_PREC Normal V	VCO_TRIM 00			
VCO_CAL_REF 1.04V	LO DIV_IB 50 u		EN_DITH On V MOD_ORD 3rd V	MUX COUNT 0			
VCO_VB_CTRL 1.20V VCO_VB_CTRL	VCO_MUX_REF 500 uA		DITH SEL Random				
CO_MLX_GAIN_CTRL LOW	VCO_MUX_OUT × 40		DEL_SD_CLK 2	Count Freq (MHz) 0			
EN_LD_ISOURCE EN_ISOU	VCO_MUK_BIAS_OVRD OFF		EN_FRAC Int V				
				COUNT_MODE_MUX_SEL 0			

NOTE: The GUI automatically writes into the registers in the High Level - Register Display.

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2.3 High Level - Pictorial Display



This tab shows only the required components that are necessary to manipulate the three modes of the GUI:

- 1. Step Mode
- 2. Manual Mode
- 3. Fractional Mode

In each of the modes, the GUI grays out/disables the controls that the user cannot set. Other controllable parameters are available to edit.

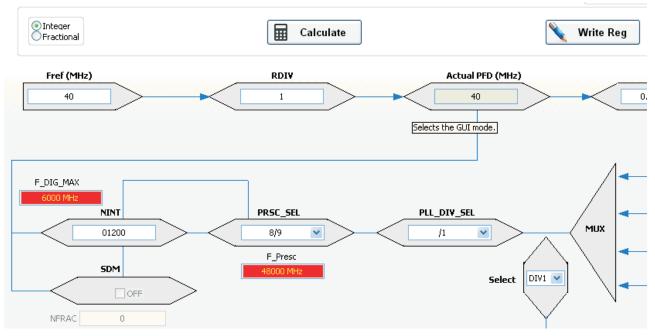
Options available in this page:

- Step Mode User is able to specify requirements like:
 - FRef
 - INT Step Target
 - RF Target
 - User can select Integer/Fractional Mode
- Manual Mode Indicates the actual set components:
 - Fref
 - RDIV
 - ICP
 - NINT
 - Presc Val
 - PLL DIV SEL
 - LO DIV SEL



- Buffers (1...4)
- Integer/Fractional Mode

The GUI calculates and displays the output, i.e., FOUT, F DIG Max, and F Presc. A warning is displayed if the F DIG MAX > 350 MHz and F Presc > 2800 MHz like the following:



User can correct for it by adjusting the required files.

- Fractional Mode This mode is mainly for the fractional calculation part and the inputs needed are:
 - FPFD Target
 - FOUT Target
 - Fref

The GUI calculates NINT, RDIV, Fractional value – NFRAC, FDIG MAX, F Presc, PLL DIV SEL, LO DIV SEL, ICP, Presc Value.

The user can manipulate the Presc Value, PLL DIV SEL and LO DIV SEL after the calculation; the GUI does not try to control them after the first calculation in this mode.

- Calculation Calculates the output based on the mode and displays it to the user.
- Write register When the user is satisfied with the calculated values, he clicks *Write Register*, which writes the calculated values into the corresponding registers.
- Enable CAL Toggles the CAL bit to initialize the Calibration Sequence.

2.4 Low Level Register Display

The GUI displays the registers in a low level manner, i.e., for each register the user can see the binary indication and toggle bits and write/read registers.



TEXAS INSTRU	UME	INTS		-		Chevro and C	TRF	7xx					
	Sta	rt Up				· 🗸	ligh Level	19	Low Level	1	2	Debug	
eigster Map Block / Register Name = Top Level Modes	Addre	Default	Mode	Size	LW*	LR*	Current Address	Bit R W		Macro Start/Rec	Stop	Delete	Macro Help
Register 0 Register 1 Register 2 Register 3	0x8 0x9 0xA 0xB	0x80000008 0x400029 0x8A0100A 0x8	R/W R/W R/W R/W R/W	32 32 32 32 32	80000008 400029 8A0100A B	80000008 400029 8A0100A B	× 8		ADDR[0] ADDR[1] ADDR[2] ADDR[3] ADDR[4]	Wait	0 💲	End Loop Save	Clear Save As
Register 4 Register 5 Register 6 Register 7	0xC 0xD 0xE 0xF	0x201F00C 0x88000000D 0x202E 0xF	R/W R/W R/W R/W	32 32 32 32	201F00C 88000000E 202E F		80000008 × 8000008	00C WIRE Data 7 CHUP 000000 ★ 8000008 6 CHUP Write Register 7 N.U.(7 N.U.(7)	CHIP_ID[5] CHIP_ID[6]	IIP_ID[5] IIP_ID[6] U.[7] U.[8] Recently One	Message Run Se ned Macro Files	Pause	Toggle # Abort
							Read Register	12 13 14 15 16 17 18 19 20	R_Sak_Er(12) COUNT_VCO_TRIM[13] COUNT_VCO_TRIM[14] COUNT_VCO_TRIM[15] COUNT_VCO_TRIM[16] COUNT_VCO_TRIM[17] COUNT_VCO_TRIM[18] COUNT_VCO_TRIM[19] COUNT_VCO_TRIM[20]	Macro Listing			
egister Description DDR(4:0) DDR(4:0) HIP_JD(6:5) 	13)	1	1	1	I	<u></u>		21 22 24 25 27 27 28 30 30 31	COUNT_VCO_SE[21] COUNT_VCO_SE[22] COUNT_VCO_SE[22] COUNT[25] COUNT[25] COUNT[25] COUNT[27] COUNT[27] COUNT[29] COUNT[29] MUX_COUNT[31]				
COUNT VCO TRIM(23:						×		Transfer R	ead to Write				

Options available in this page:

- Register Map Navigates to registers
 - Based on the selection of bits that are displayed on the right pane.
- Bits Display Displays the register value in binary format
 - Read column displays the last read back value (corresponds with Read Data)
 - Write column displays the last written value (corresponds with *Write Data*)
 - The user can click on the write column to modify the values of the register.
- Current Address Displays the current address of the selected register
- Write data User can enter the data in or modify the bits in the *Bits Display* when the write register is clicked; the GUI writes into the corresponding register with the value programmed. This field also corresponds with the Write Column of the Bits Display.
- Write Register Button → Writes the value in the Write Data/Bits Display into the register.
- **Read data** When *Read* button is clicked, the read back data is displayed here. This field also corresponds with the Read Column of the Bits Display.
- **Read Register** Button \rightarrow Read the Register value and displays in the *Read Data*.
- MACRO:



Start/Rec	Stop	Delete	Macro Help
Loop	0	End Loop	Clear
Wait	0 ms 🏮	Save	Save As
Comment	Message	Pause	Toggle #
Run	Run Se	elected	Abort
ecently Open	ed Macro Files		
			*
lacro File Path	1		
acro Listing			
der of Eisening			4.

This is an option available to the user where, the activity in the Low Level Display page can be recorded, saved, and played back,

- Start Rec Starts to record the activity
- Stop Stops recording
- Save/Save as Saves the activity logged
- Run Runs the whole step listed in the Macro Listing
- Run Selected Runs only the selected items in the Macro Listing
- Macro Listing Displays the activity done/Steps Run
- Macro File Path to select a macro file path that is already saved
- Recently Opened Macro Files has a list of files which where opened recently



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2.5 Debug

V INS	AS TRUMENTS		TRF3	7xx			
	Start Up		High Level	A	Low Level		Debug
							For debug Of
	Write Register rite Address	Custom Read Register Read Address	Bit Locations				
×		* 0					
	ite Data	Read Data	DATA 0 🗢				
*	0	* 0					
Write C	Custom Register	Read Custom Register	LE 2 🗘		a second second	/aveform Graph - Write	
						www.www	
					SDATA-		
					SDATA-		
					SDATA-		
ARGS					SDATA-		
ARG5 File Path					SDATA-		
					SDATA-		
	Write File		Clear Buffer	2	SDATA-		
	Write File			2	SDATA-		
	Write File				SDATA-		
	Write File				SDATA-		
	Write File				SDATA-	1	Error Out
	Write File				SDATA-	1	Error Out status code
		*/			SDATA-	1	Error Out
	Write File	*/			SDATA-	1	Error Out status code

This screen is not used; it is only for internal debugging.

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RFID	www.ti-rfid.com		
OMAP Mobile Processors	www.ti.com/omap		
Wireless Connectivity	www.ti.com/wirelessconnectivity		
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