



GFT6011

3GHz Transient Digitizer

FEATURES

- 1 channel 10-bit vertical resolution
- 10 GS/s sampling rate
- DC to 3 GHz Analog Bandwidth
- 2 dBm full scale range
- External Trigger with 20ps TDC
- 1 M Samples data memory
- Controlled via Ethernet or USB

APPLICATIONS

- Diagnostics on Laser system
- Measure in High-Energy physics
- High speed data acquisition
- Test on high speed circuits
- Automatic Test Equipment
- LIDAR
- Radar receiver



DESCRIPTION

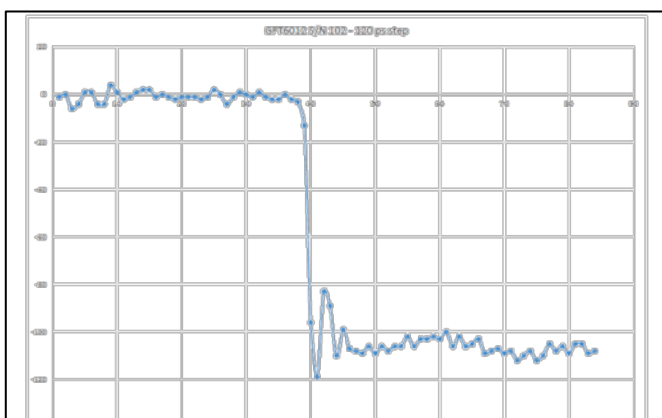
The GFT6011 is the ideal digitizer for characterizing high speed signal. This compact digitizer can record one analog input at speeds of 10 Giga Samples by second with 10-bit resolution.

The GFT6011 supports an external trigger input to synchronize acquisition with external event.

The GFT6011 is a low profile 19", 1U rack mountable compact packaging instrument with 10/100 Ethernet, or USB, interface for remote control.

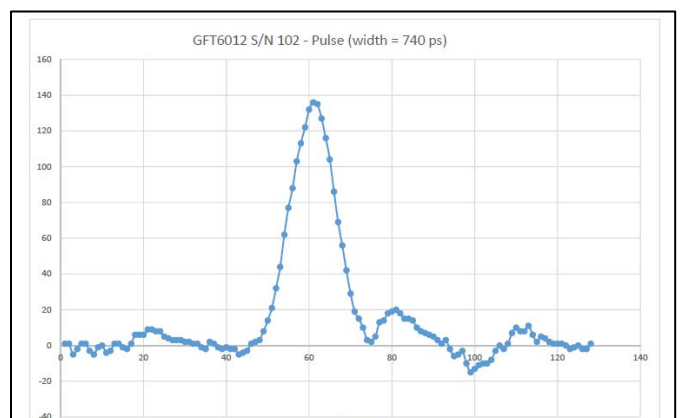
The digitizer is supplied with windows Lab software application which includes a front panel graphical interface. This software application can be used to control and explore the capabilities of the high speed digitizer. Data can be saved in the PC for off-line analysis

GFT6011 operates with a standard AC, 90-240 V supply, and consumes less than 60 Watts.



(1ns / div)

120 ps Step from 4015 Picopulse lab



(1ns / div)

740 ps FWHM Pulse

Examples of Record made with GFT6011



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SPECIFICATIONS

Parameter		Value
Analog input		
	Channel Number	1
	Bandwidth	DC to 3 GHz
	Input impedance	DC - 50 Ω
	Full scale range	2 dBm (800mV p-p)
	Offset	0 V (fixed)
	Signal Noise Ratio	48 dbFS @ 1 GHz
	SFDR	45 dBc
	ENOB	7.2 bits @ 1 GHz
	Connector	SMA
Digitizer		
	Sampling rate	10 GS/second
	Resolution	10 bits
	Memory size	1 M samples
External Trigger system		
	TDC	
	Resolution	15 ps
	Jitter	< 15 ps
	Trigger input	
	Threshold	Adjustable from 0 to 2V, slope positive, 50 Ω
	Connector	SMA
Clock		
	Internal clock	
	Frequencies	2.2 to 2.5 GHz
	External reference	10 MHz
	Shape	Square or Sinewave
	Level	10 to 15 dBm - 50 Ω
	Connector	SMA
Software		
	Interface Control	Via Ethernet
General specifications		
	Size	Rack 19", 1U, 300 mm
	Power supply	90 to 240 V, 60 W
Options		
Option 1	Analog input	AC coupled
Option 2	Clock reference	10 to 100MHz
Option 3	External Clock input	
	Frequencies	2 GHz to 2.5 GHz
	Level	0 to 10 dBm - 50 Ω
Option 4	External output	
	Frequency	Maximum 2.5 GHz
	Level	0 dBm - 50 Ω



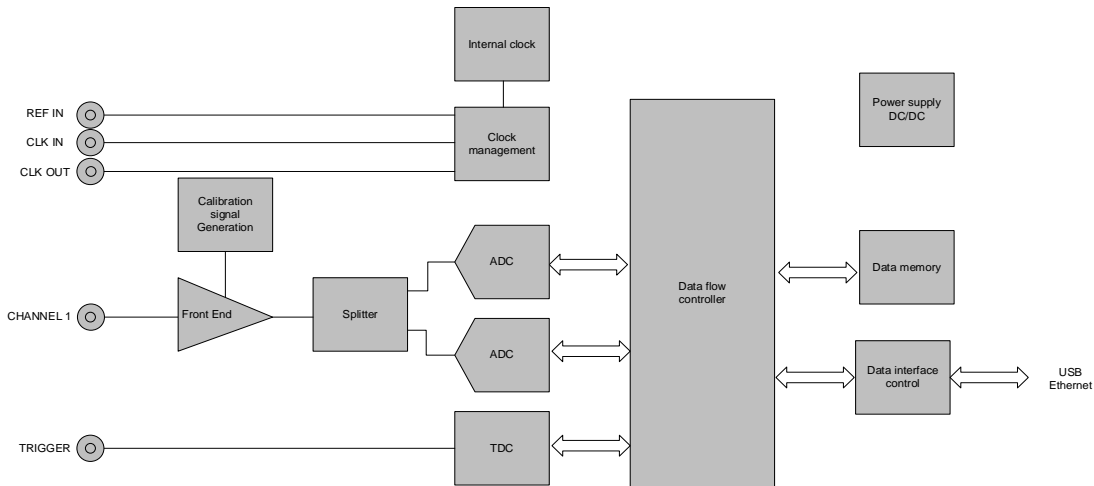
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FUNCTIONAL OVERVIEW

Block diagram

The digitizer includes an analog front-end with A/D conversion, a data flow controller and data interface controller, and a trigger system.



GFT6011 Block diagram

Analog front end

The Analog to Digital Conversion is performed by a 10-bit 10GS/s ADC using multiple ADCs interleaving technologies.

The GFT6011 provides an SMA front panel connector for analog input. Single ended input is DC or AC coupled (factory option) with an input bandwidth from DC to more than 3 GHz.

Trigger

A front panel SMA connector allows an external trigger for synchronization. The input is coupled with a 15ps resolution TDC for real time operation.

Clock

The GFT6011 provides an internal low jitter clock generator locked on a 100 MHz internal reference. It provides also 3 rear panel SMA connector

"REF IN" for 10 MHz external clock reference

"CLK IN" for external 2.5GHz clock input (in option)

"CLK OUT" for an external 2.5GHz clock output (in option)

Data Interface

The 10/100 Ethernet interface is intended for stand-alone operation. With this standard interface the digitizer can be easily connected to any computer.

Calibration

A wideband signal calibration generator is provided for on board, stand-alone calibration.



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SOFTWARE TOOLS

The GFT6011 is supplied with Lab Software Application that provides quick and easy control of the digitizer.

The GUI is constituted of two pages:

- "Main" This page is to set-up the parameters and acquire the signal.
An indicator light (green) when the digitizer is ready.
- "Advance Settings" This page is for automatically calibrate the digitizer after warming up and if the temperature change a lot.

Main page:

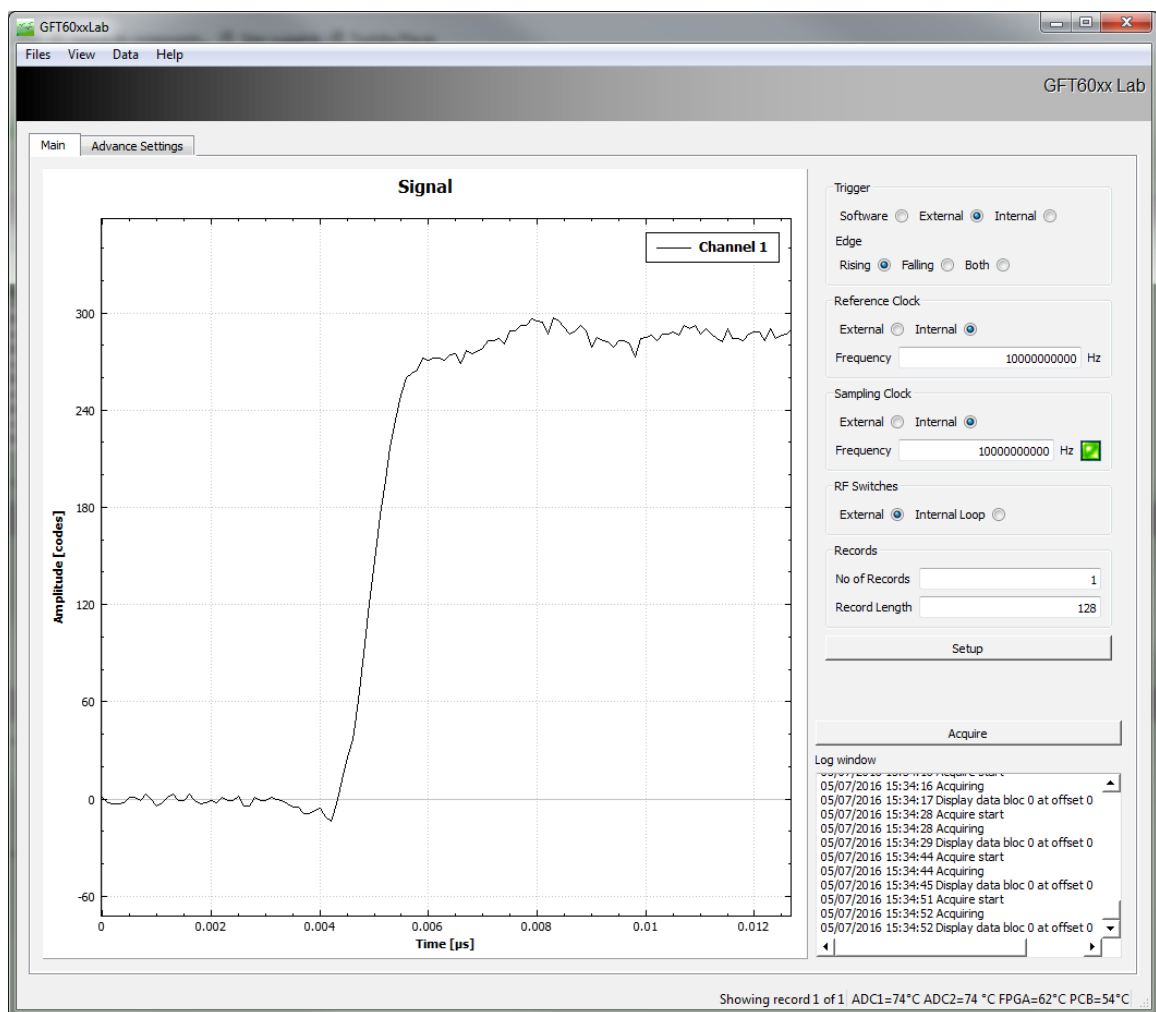
At the top three commands

- "Files" to connect/disconnect the device
- "View" to display the different record
- "Data" to save the record into the specified file

At the right two commands

- "Set up" to send parameters to digitizer
- "Acquire" to run record

At the bottom one line to indicate the temperature of the critical components.

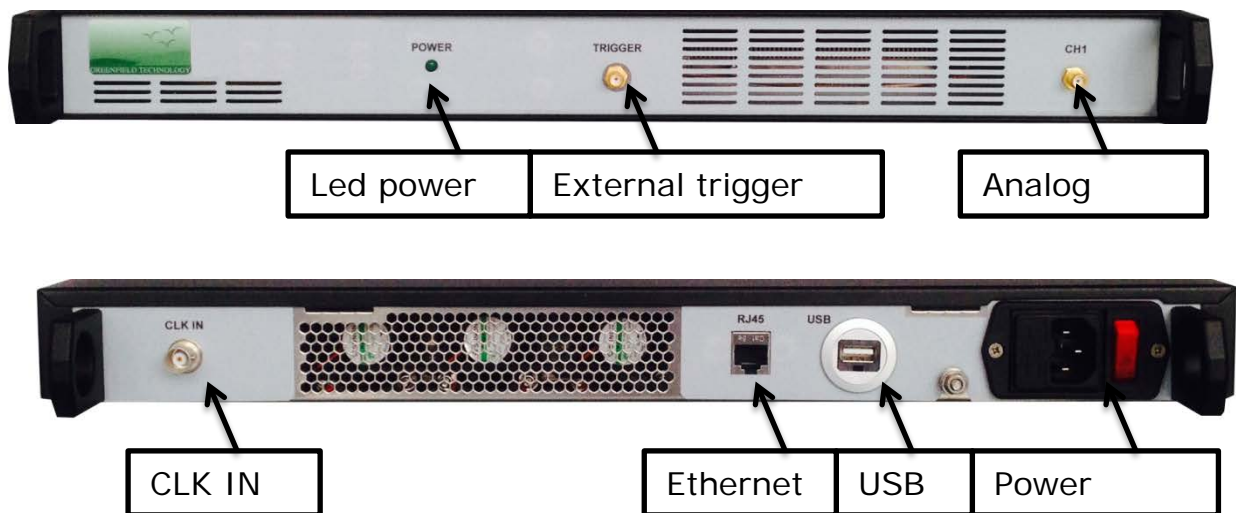


GFT6011 Lab software Main page

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FRONT AND REAR PANEL INTERFACE



CONNECTORS, SWITCH, INDICATORS

Front Panel	
TRIGGER	External trigger input: SMA connector
CH1	Analog input : SMA connector
POWER	Power on Indicator

Rear Panel	
CLK IN	External Clock input: SMA connector
RJ45	Ethernet connexion : RJ45
USB	USB connection : USB type A connector
Plug	AC power plug (90 - 240V)
ON/OFF	Power ON /OFF switch

ORDERING INFORMATION

Description	Reference
GFT6011 DC coupled	GFT6011-DC
Option 1: GFT6011 AC coupled	GFT6011-AC
Option 2,3,4	Ask to the factory