GFT614
1 to 4 Line 50 Ω Driver Module

Features

- Up to 150 MHz clock rate
- Drive 100 feet of cable at 150 MHz
- Four synchronized outputs
  50 Ω external load with TTL level
  1 ns typical output rise & fall time
  Selectable polarity (normal or inverted)
  < 2 ps input output RMS jitter
- One input with
  Selectable threshold (+1 V / 0 V / -1 V)
  Selectable load 50 Ω or 1 kΩ pull up
- Active low Gate input
- Operate from DC +5 V
- All input & output are BNC connectors
- Compact module: 115 X 103 x 37 mm
- Option: 4 individual 50 Ω TTL line drivers

Top view of the module

Applications

- Clock distribution
- 1 to 4 splitters
- Pulse inverted
- Level translator
- Converting sinewave to square wave
- Long Line Drivers
- Tools for Lab
- Components Test equipment

Description

The GFT614 module is specially designed for distribution of high frequency clock and high-speed logic signal to multiple devices via long cable. All outputs with 50 Ω load can drive 100 feet of cable at clock rate greater than 150 MHz with 2.5 V amplitude.

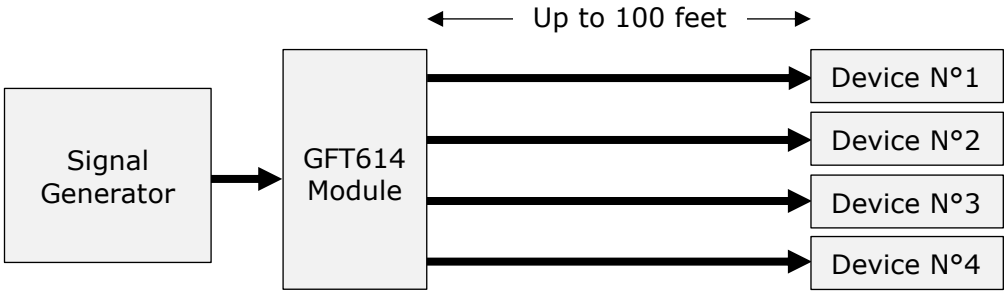
The channel input threshold can be set to +1 or 0 or -1 V and the input load can be selected from 50 Ω or 1 KΩ pull up by a front panel switch. So that channel input can be driven directly by TTL / CMOS logic levels or open collector or negative pulse (0 to -3 V) or AC coupled signal (± 0.5 V).

All outputs with 50 Ω load can drive 100 feet of cable at clock rate greater than 150 MHz with 2.5 V amplitude. Each output polarity can be set normal or inverted and outputs are compatible with DC or AC TTL input.

A gate input allows to disable the module by external signal.

The GFT614 is a compact module supplied with a +5 V AC/DC adapter.

Typical application (see below) includes to distribute High speed signal to four devices via long cable (up to 100 feet).



Typical application

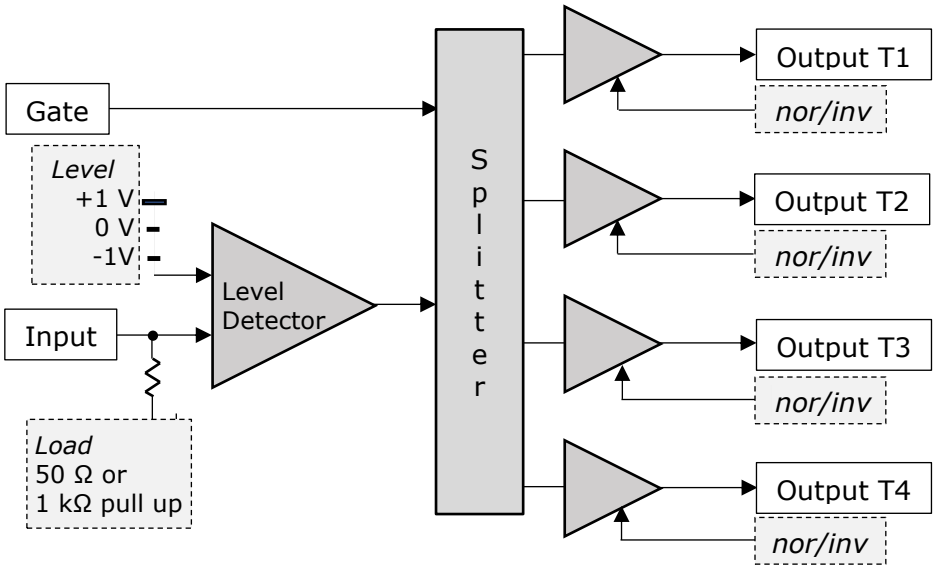
Specifications

Input	
Range	+5 V to -5 V
Threshold level	+1 V or 0 V or -1 V (selectable at rear panel)
Internal load	50 Ω or 1 kΩ pulled to +5 V (selectable at front panel)
Minimum pulse width	5 ns
Output	
Number	4
Output resistance	50 Ω
Low level	0.25 V
High level	2.5 V @ Load=50 Ω, 4 V @ Load > 10 kΩ
Polarity from input	Normal or inverted
Rise /fall times	1 ns / 1 ns @ 100 MHz square wave
Jitter RMS	<10 ps (input to output)
Max clock frequency	150 MHz @ cable length = 3 feet
	150 MHz @ cable length = 100 feet
Skew	500 ps (TBC)
Gate	
Low Level	< 0.5 V
High level	2.4 V
Rate	50 MHz
General specifications	
Control	Switches to select: - Input load - Input threshold level - Output polarity: normal or inverted Power on indicator
Inputs & outputs	All are BNC connectors
Size	W = 115, L = 103, H = 30 mm
Mounting flange	included
Power V/A	+5 V / 200 mA max. External AC (90 -240 V) to DC (+ 5 V) adapter furnished
Power connector	Jack 2.10 mm
Option:	
GFT644 module	4 individual 50 Ω TTL line drivers

Operating information

Block diagram

The 4-channel line driver Includes following function: A level detector, a splitter and one driver per channel



Block diagram

Level Detector

This function is specially designed to detect the rising and the falling edge of the input signal at precise threshold value. Threshold can be selected to +1 or -1 or 0 Volts using a three-position switch. The 0 Volt threshold setting is intended for signal with zero crossing such as sinewave or AC coupled square wave signal.

Input internal load can be selected to 50 Ω or 1 kΩ pulled at +5 V so that it can be driven directly by open collector.

Splitter

A high-speed digital splitter with low jitter distributes the calibrated pulse to 4 drivers.

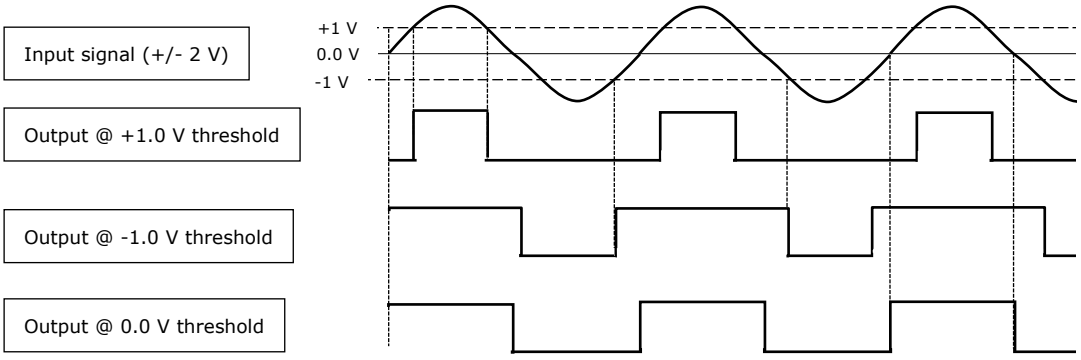
Gate

Gate signal allows to quickly inhibit all outputs.

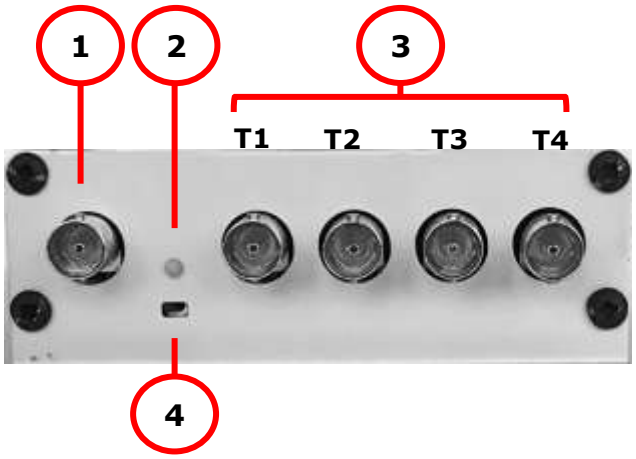
Driver

High speed Driver with serial 50 Ω terminated output allows to drive line with or without 50 Ω external load. With 50 Ω load you may drive up to 100 feet of cable.
Normal/inverted switch provides output logic polarity selection independently on each channel.

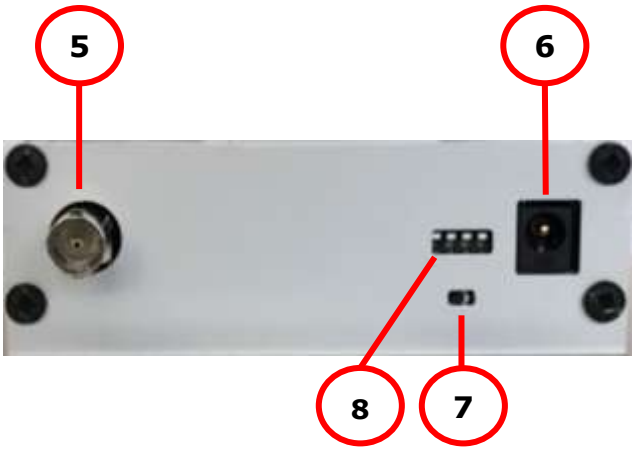
Examples of input output mode



Input & Output



Front panel



Rear panel

Connector, indicator and switch

Front panel		Rear panel	
	• Indicator		• Connector
2	Light green when power on	**5**	Gate input: BNC connector
	• Connector	**6**	Power input: Jack 2.10 connector
1	Signal Input: BNC connector		• Switch
3	T1 Signal output: BNC connector	**7**	To select input threshold
	T2 Signal Output: BNC connector	**8**	To select normal/inverted outputs
	T3 Signal Output: BNC connector		
	T4 Signal Output: BNC connector		
	• Switch		
4	To select 50 Ω or high input impedance		

Pulse shaping modules

Model	Description
GFT101	Electrical-to-optical Pulse Converter
GFT632	32 - 70 V, <2 ns rise time under into 50 Ω, Pulse Generator
GFT300	Sub nanosecond Pulse Stretcher from pick up diode to provide clock reference