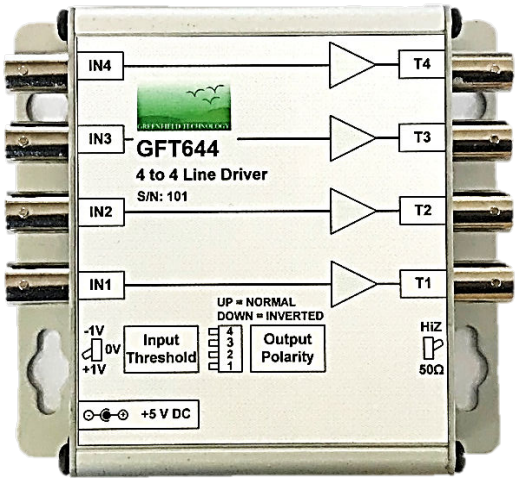
GFT644

4 channel 50 Ω TTL Line Driver Module

Features

- Up to 150 MHz clock rate
- Drive 100 feet of cable at 150 MHz
- Four independent inputs with:
  selectable threshold (+1 V / 0 V / -1 V)
  selectable load (50 Ω or 1 kΩ pull up)
- Four independent 50 Ω TTL outputs with:
  selectable polarity
  1 ns typical output rise & fall time
  10 ps input output RMS jitter
- Operate from DC +5 V
- All input & output are BNC connectors
- Compact module: 115 X 80 x 30 mm
- Option: 1 input to 4-line drivers



Top view of the module

Applications

- High speed digital communication
- High to low Impedance converter
- Pulse inverter
- Level translator
- Sine to square wave converter
- Long line Drivers
- Tools for lab
- Components Test equipment

Description

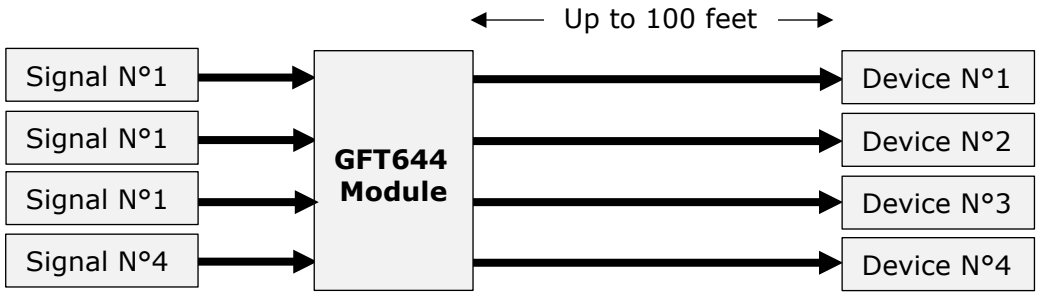
The GFT644 module is specially designed for interfacing signal source and 50 Ω long cable at up to 150 MHz rate.

The 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 up to 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.

The GFT644 is a compact module supplied with a +5V AC/DC adapter

Typical application (see below) includes to distribute four independent high-speed signals to four devices via long cable (up to 100 feet) width TTL level.



Typical application

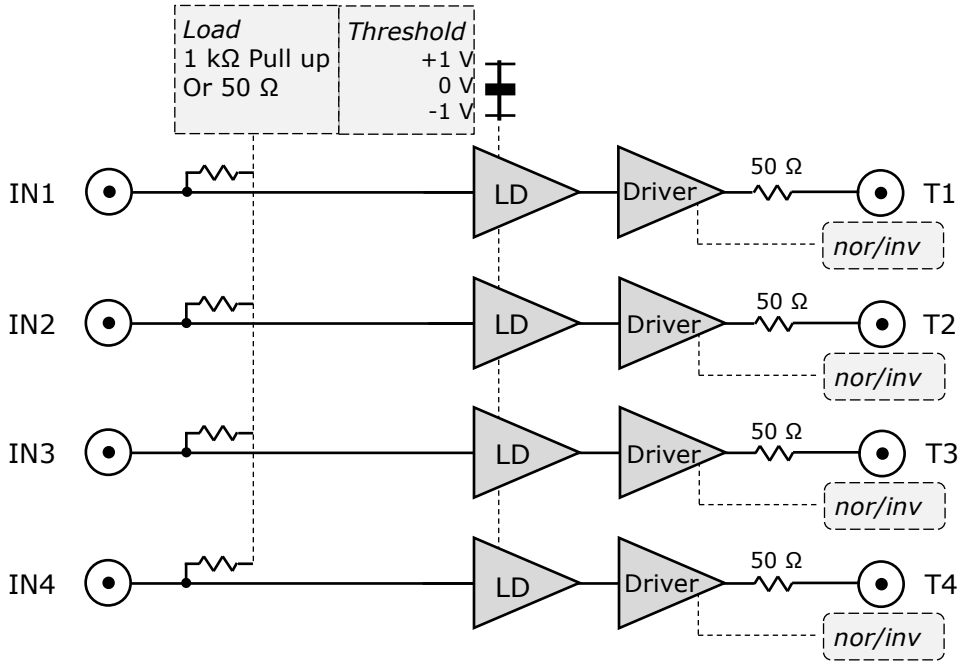
Specifications

Input	
Number	4
Range	+5 V to -5 V (max.)
Threshold level	Preset to -1 V or 0 V or +1 V
Internal load	Adjustable to 50 Ω or 1 kΩ pulled up to +5 V
Minimum pulse width	5 ns
Output	
Number	4
Output resistance	50 Ω
Low level	0.5 V
High level	2.5 V @ Load=50 Ω, 4 V @ Load > 10 kΩ
Rise /fall times	1 ns / 1ns @ 100 MHz square wave
Polarity from input	Normal or Inverted
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)
General specifications	
Control	Switches to select: - input load (common) - input threshold (common) - Output mode: normal or inverted (individual) Power on Indicator
Inputs & outputs	All are BNC connectors
Size	W=115, L=80, H=30 mm
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 :	
GFT614 module	1 input to 4 Line 50 Ω Driver Module

Operating information

Block diagram

The 4 channel TTL line driver includes two functions: A level detector and a 50 Ω driver per channel.



Level Detector (LD)

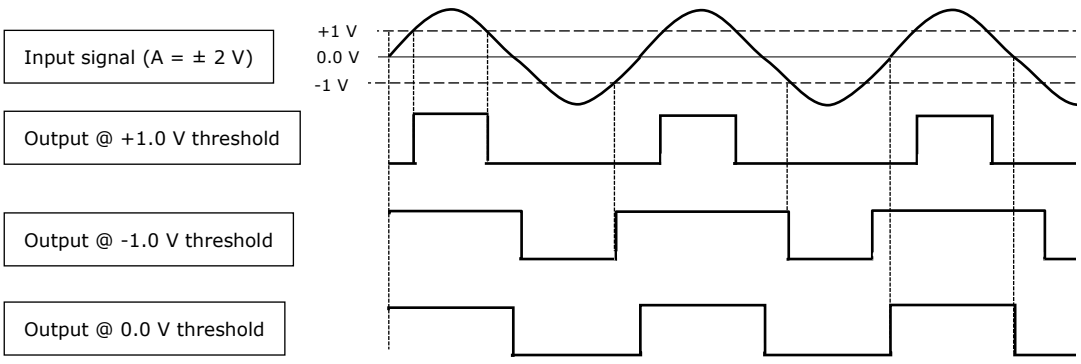
This function is specially designed to detect the rising and the falling edge of the input signal at precise threshold value. Threshold can be selected to +1 or 0 or -1 Volts using a three-position switch. The 0 Volt threshold setting is intended for signal with zero crossing such as sinewave or AC coupled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

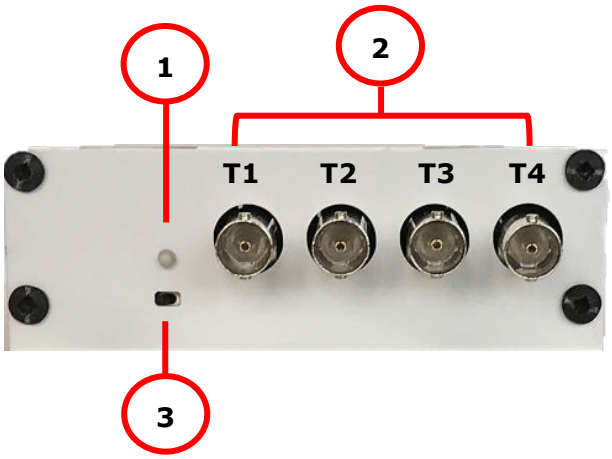
Driver

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.

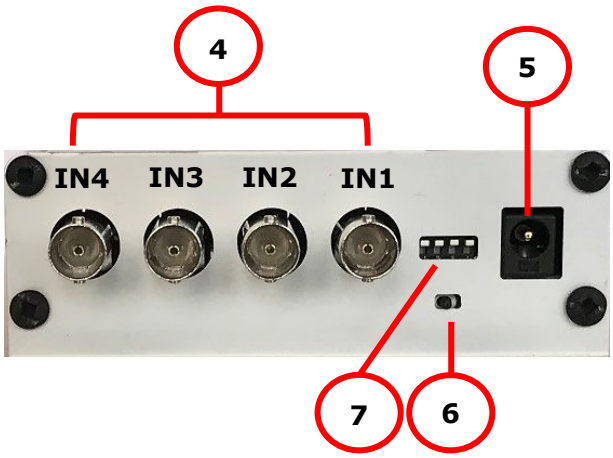
Examples of input output mode



Input & Output



Front panel



Rear panel

Connector, indicator and switch

Front panel		Rear panel	
• Indicator			• Connector
1	Light green when power on	**4**	IN1 Input: BNC connector
• Connector			IN2 Input: BNC connector
2	T1 Signal Output: BNC connector		IN3 Input: BNC connector
	T2 Signal Output: BNC connector		IN4 Input: BNC connector
	T3 Signal Output: BNC connector	**5**	Power input
	T4 Signal Output: BNC connector	• Switch	
• Switch		**6**	To select input threshold
3	To select 50 Ω or high input impedance	**7**	To select normal/inverted output