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Data Sheet

July 30, 2026

STANFORD RESEARCH

Stanford Research CG648 – ECL up to 2050MHz

Stanford Research CG648 – ECL up to 2050MHz The Stanford Research Systems CG648 is an optional negative ECL clock receiver module for the CG635 Synthesized Clock Generator. SRS documentation describes it as a remote line receiver that converts the CG635 rear-panel LVDS clock output into complementary negative ECL logic levels on SMA connectors for use at a distance from the instrument. The CG648 is intended for delivering clean, complementary ECL clock signals to high-speed digital and communications systems that require negative ECL drive levels. It is used with the CG635 when ECL levels are needed at the device under test or system under test, especially where the receiver can be placed near the load while the CG635 remains remotely located. The Stanford Research Systems CG648 is an optional negative ECL clock receiver module for the CG635 Synthesized Clock Generator. SRS documentation describes it as a remote line receiver that converts the CG635 rear-panel LVDS clock output into complementary negative ECL logic levels on SMA connectors for use at a distance from the instrument. The CG648 is intended for delivering clean, complementary ECL clock signals to high-speed digital and communications systems that require negative ECL drive levels. It is used with the CG635 when ECL levels are needed at the device under test or system under test, especially where the receiver can be placed



MODEL

**Stanford Research
CG648**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

CG648

LISTING

<https://aumictechlabs.com/products/cg648-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Stanford Research CG648 is a ECL clock generator producing stable signals from DC to 2.05 GHz with random jitter below 1 ps rms. Built for demanding applications in research, high-speed digital systems, and communications networks, it delivers precise frequency control with 16-digit resolution and adjustable phase positioning to ± 5 ns across its full operating range. Front-panel SMA outputs provide complementary square waves in ECL, PECL, LVDS, or CMOS logic levels, while a rear-panel RJ-45 connector offers differential clock distribution via RS-485 (to 105 MHz) or LVDS (to 2.05 GHz). The CG648 features a crystal-controlled 10 MHz timebase with 5 ppm stability, upgradable to OCXO or Rubidium references for applications demanding superior frequency accuracy. Output amplitude is adjustable from 0.2 V to 1.0 V into 50 Ω loads, with offset control from -2 V to +5 V. Rise and fall times of 80 ps minimize signal degradation in time-critical applications. Phase resolution reaches 1 degree above 200 MHz, with edge positioning better than 14 ps at any frequency between 0.2 Hz and 2.05 GHz. An optional PRBS generator supports eye-pattern testing of high-speed data channels up to 1.55 Gb/s. Fast settling time under 30 ms ensures rapid frequency transitions. Remote control via RS-232 and IEEE-488/GPIB enables automated test sequences and system integration.

Technical Specifications

Frequency Range:	DC to 2.05 GHz
Output Logic Levels:	ECL, PECL, LVDS, CMOS, RS-485
Jitter:	Random jitter 200 MHz; 1 nanodegree (finest)
Edge Positioning Resolution:	Better than 14 ps (0.2 Hz to 2.05 GHz)
Time Modulation Range:	± 5 ns
Timebase Stability:	5 ppm (crystal); upgradable to OCXO or Rubidium
Settling Time:	< 30 ms
RS-485 Rear Output:	Up to 105 MHz
LVDS Rear Output:	Up to 2.05 GHz
PRBS Generator (Optional):	Up to 1.55 Gb/s

Key Features

- Complementary Q and -Q front-panel outputs on SMA connectors
- Differential clock distribution via RJ-45 on twisted pairs
- Rear-panel ± 5 VDC power for optional line receivers
- Adjustable phase and edge timing for precision synchronization
- Dual timebase options for stability-critical measurements

Typical Applications

- High-speed digital system clocking and synchronization
- Data acquisition and transmission systems
- Communication network testing and development
- Eye-pattern analysis for serial data channels
- Phase-coherent measurement systems

Compatibility & Integration

Designed to work with optional line receivers (CG640 to CG649)

Interfaces via RS-232 and IEEE-488/GPIB for remote control

Supports CAT-6 cable termination at 100 Ω (rear RJ-45 output)

Features & description

From manufacturer datasheet

Features

- Negative ECL clock receiver accessory for CG635
- Operates up to 2.05 GHz
- Complementary Q and /Q outputs on SMA connectors
- 100 ps transition times
- 50 Ohm source and load impedance design
- Connects via Category-6 cable to CG635 rear-panel RJ-45 output
- Remote placement of logic-level clocks away from the instrument
- Part of the CG640–CG649 optional receiver family

CG648 Characteristics / Specifications

PARAMETER	VALUE
Stanford Research CG6	ECL up to 2050MHz Overview The Stanford Research Systems CG648 is an optional negative ECL clock receiver module for the CG635 Synthesized Clock Generator. SRS documentation describes it as a remote line receiver that converts the CG635 rear-panel LVDS clock output into complementary negative ECL logic levels on SMA connectors for use at a distance from the instrument.
Model	CG648
Manufacturer	Stanford Research Systems
Instrument Type	Optional Clock Receiver Module
Parent Instrument	CG635 Synthesized Clock Generator
Output Logic Family	Negative ECL (NEG ECL)
Logic Levels	Negative ECL ($V_{ee} < 0$, $V_{cc} = 0$); CG635 ECL reference levels are typically -1.00 V / -1.80 V
Maximum Frequency	2.05 GHz (2050 MHz)
Transition Time	100 ps
Source Impedance	50 Ohm
Load Impedance	50 Ohm
Inputs	RJ-45; connects to CG635 via standard Category-6 cable; uses LVDS clock pair
Outputs	Complementary negative ECL Q and $\bar{Q}$ on SMA connectors
Termination	Both SMA outputs should be terminated with 50 Ohm loads
Operation Above Fmax	Continues to operate above maximum specified frequency with reduced amplitude
Cable Length Guidance	At 2 GHz, Category-6 cable may be up to about 10 feet; at 10 MHz, cable may be up to about 200 feet
Power	Powered from the CG635 rear-panel RJ-45 interface (+/-5 VDC supplied for optional line receivers) System Context The CG648 belongs to the SRS optional receiver set used with the CG635: - CG640 CMOS (+5 Vcc) - CG641 CMOS (+3.3 Vcc) - CG642 CMOS (+2.5 Vcc) - CG643 PECL (+5 Vcc) - CG644 PECL (+3.3 Vcc) - CG645 PECL (+2.5 Vcc) - CG646 RF (+7 dBm) - CG647 CML/NIM - CG648 ECL - CG649 LVDS - CG650 All ten receivers (CG640–CG649)

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	CG648
Manufacturer	Stanford Research Systems
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Parent Instrument	CG635 Synthesized Clock Generator
Output Logic Family	Negative ECL (NEG ECL)
Logic Levels	Negative ECL (Vee < 0, Vcc = 0); CG635 ECL reference levels are typically -1.00 V / -1.80 V
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Source Impedance	50 Ohm
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Outputs	Complementary negative ECLQand /Q on SMA connectors
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Operation Above Fmax	Continues to operate above maximum specified frequency with reduced amplitude
Cable Length Guidance	At 2 GHz, Category-6 cable may be up to about 10 feet; at 10 MHz, cable may be up to about 200 feet
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Operational Notes

The CG635 rear-panel RJ-45 connector provides differential LVDS clocks (to 2.05 GHz) and RS-485 clocks (to 105 MHz), along with power for optional receivers. The CG648 receives the differential LVDS clock over CAT-6 cable and converts it to complementary negative ECL outputs. Maximum usable frequency also depends on Category-6 cable length and cable quality.

Notes

This manual OEM source was compiled from official Stanford Research Systems CG635 catalog and user manual documentation covering the CG648 ECL receiver module.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.