OPTO 22

DATA SHEET

These parts are obsolete and no longer available.

Use Table 1 to select RAM expansion options for your controller.

Table 1: RAM Expansion Options

| RAM Size | G4LC32 | | G4LC32SX | | G4LC32ISA | G4LC32ISA-LT | M4RTU/M4IO/M4[3] | |
	Original[2]	New[2]	Original[2]	New[2]	------------	------------	Original[3]	New[3]
256K	N/A	N/A	Base Configuration	Base Configuration	Base Configuration	Base Configuration	Base Configuration	N/A
512K	Base Configuration	Base Configuration	N/A	N/A	Buy 2 G4RAM1M	N/A	N/A	N/A
1M	G4LC32RAMEX5M	Buy 4 G4RAM1M	N/A	Buy 2 G4RAM4M	Buy 2 G4RAM4M	N/A	Buy 2 G4RAM4M	Base Configuration
2M	N/A	Buy 4 G4RAM4M	N/A	N/A	Buy 4 G4RAM4M	N/A	N/A	N/A
4M	G4LC32RAMEX4M	Buy 8 G4RAM4M	N/A	N/A	N/A	N/A	N/A	N/A

Use Table 2 to select EPROM expansion options for your controller.

Table 2: EPROM Expansion Options

| Size | G4LC32 | | G4LC32SX | | G4LC32ISA | G4LC32ISA-LT | M4RTU | M4IO | M4 |
	Original[2] (UV EPROM)	Current[2] (Flash)	Original[2] (UV EPROM)	Current[2] (Flash)	Flash	Flash	Flash	Flash	Flash
128K	Base Configuration	N/A	Base Configuration	N/A	N/A	N/A	N/A	N/A	N/A
256K	Buy 4 27C512-120[1]	N/A	N/A	Base Configuration	Base Configuration	Base Configuration	Base Configuration	Base Configuration	Base Configuration
512K	Buy 4 27C010-120[1]	Base Configuration	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1M	Buy 4 27C020-120[1]	G4LC32F1M	N/A	G4LC32SXF1M	G4LC32ISAF1M	N/A	M4RTUF1M	M4IOF1M	M4F1M

Notes:

[1] = Chips from Intel (N/A from Opto 22). Older chips had a 256K base configuration.

[2] = See attached to determine if you have a new style G4LC32/G4LC32SX or old style G4LC32/G4LC32SX.

[3] = New controllers are marked with a "1MB RAM installed" sticker.

OPTO 22

DATA SHEET

Form 680-230117

G4LC32 Revised Features

These parts are obsolete and no longer available.

G4LC32 controllers manufactured after January 1994 have been modified and are compatible with the original G4LC32 controllers. The following table describes the changes.

Important: *Connectors wired for the G4LC32SX controller are **not** compatible with the G4LC32 or other controllers. Use the connectors provided and refer to the configuration label for wiring information.*

Feature	New G4LC32	Original G4LC32
EPROMs	Flash EPROMs. Firmware update is downloaded to the EPROMs by using the FLASH utility	UV EPROMs. Firmware update requires physical removal and installation of UV EPROMs.
RAM Expansion	Requires additional RAM chips. See "RAM and Flash EPROM Installation, Flash EPROM Jumpers" for chip part numbers.	Requires expansion kits G4LC32RAMEX.5M G4LC32RAMEX2M G4LC32RAMEX4M
RS-232 Ports	Ports are green 7-pin mini-receptacles. Cables use green 7-pin mini-plug, Phoenix Contact P/N MCVR 1,5/7-ST-3,81	Use subminiature 9-pin D connectors.
	115.2 K maximum baud rate	38.4 K maximum baud rate
	+ 5 VDC available from Pin 1 on COM0 and COM1	+ 5 VDC source not available
RS-485 Ports	Ports are green 7-pin mini-receptacles. Cables use green 7-pin mini-plug, Phoenix Contact P/N MCVR 1,5/7-ST-3,81	Ports are green 7-pin receptacles. Cables use larger green 7-pin plugs, Phoenix Contact P/N MVSTBW 2,5/7-ST-5,08.
	Switches used to terminate and bias ports.	Jumpers used to terminate and bias ports.
ARCNET Ports	Straight connection to port.	Requires right angle elbow to port.
Power Connector	Straight connection; can be connected without opening controller s front panel door.	Connection is at a right angle; must open controller s front panel door to access.
Power Requirements	+ 5 VDC (± 0.1) @ 2 A	+ 5 VDC (± 0.1) @ 2.5 A - 5 VDC (± 0.25) @ 20 mA
Number of Circuit Boards	3	7
Weight	4.3 lbs	5.5 lbs

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OPTO 22

DATA SHEET

Form 680-230117

G4LC32SX Revised Features

These parts are obsolete and no longer available.

G4LC32SX controllers manufactured after April 1994 have been modified and are compatible with the original G4LC32SX controllers. The following table describes the changes.

Important: *Connectors wired for other Opto 22 controllers are **not** compatible with the G4LC32SX. Use the connectors provided and refer to the configuration label for wiring information.*

Features	New G4LC32SX	Original G4LC32SX
EPROMs	-Uses Flash - Firmware update is downloaded to the EPROMs by using the FLASH200 utility -EPROM size is expandable from 256 KB to 1 MB	- Uses UV EPROMs - Firmware update requires physical removal and installation of UV - EPROM size is 128 KB
Jumpers	<u>Jumper groups:</u> AX: Address extender E/R: Run from Flash EPROM or RAM RJ0: EPROM type, size MJ0: RAM size X0, X2: Communication mode	<u>Jumper groups:</u> AX: Address extender E/R: Run from EPROM or RAM
RAM Expansion	256 KB, expandable to 1 MB	256 KB, nonexpandable

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov* RIO connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a RIO EMU energy monitoring unit that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can also use *groov* RIO with a Modbus/TCP master or as remote I/O for a *groov* EPIC system.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov* EPIC processor. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov* EPIC processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov* View to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

QUALITY

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California.

Because we test each product twice before it leaves our factory rather than testing a sample of each batch, we can afford to guarantee most solid-state relays and optically isolated I/O modules for life.

FREE PRODUCT SUPPORT

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Support is always available on our website, including free online training at OptoU, how-to videos, user's guides, the Opto 22 KnowledgeBase, and OptoForums.

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Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at **800-321-6786** (toll-free in the U.S. and Canada) or **+1-951-695-3000**, or visit our website at www.opto22.com.

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