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Description

Part Number	Description				
SNAP-LCSX	Opto 22 SNAP Controller with 2 COM ports				
SNAP-LCSX-PLUS	Opto 22 SNAP Controller with 4 COM ports				

*** These products are obsolete and no longer available.

The SNAP-LCSX and SNAP-LCSX-PLUS* controllers are the cost-effective answer to applications requiring small, powerful, real-time industrial control. These compact members of a fieldtested and time-proven family of controllers offer tight integration with Opto 22's successful SNAP I/O[™] line of intelligent, industrial input/output systems and the Opto 22 FactoryFloor® software suite for industrial automation. At onethird the price and one-sixth the footprint of previous controllers, the SNAP-LCSX and LCSX-PLUS deliver on-the-spot control for distributed automation.

The two controllers have identical dimensions and share similar features, such as a single 5-volt power requirement and both DIN rail and panel mounting options. Both contain powerful 32-bit processors capable of a wide range of computing functions. SNAP-LCSX provides two COM ports and SNAP-LCSX-PLUS provides four. For simplification, the LCSX-PLUS is shown in most of the diagrams in this data sheet.

Software

The SNAP-LCSX and LCSX-PLUS controllers are designed to work in combination with FactoryFloor, Opto 22's suite of Windows 32-bit software. FactoryFloor consists of four integrated components:

- OptoControl[™], a graphical, flowchart-based development environment for machine control and process applications
- OptoDisplay[™], an intuitive, shared database, HMI and trending package
- OptoServer[™], a robust, OPC-compliant data server that connects the controller network with the PC network
- OptoConnect[™], a bidirectional link between the SNAP controller database and Microsoft's SQL Server and Access databases.

SNAP-LCSX and LCSX-PLUS are configured and developed using OptoControl on a PC workstation. OptoControl is an easy

SNAP-LCSX

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* For use in hazardous locations, equipment must be mounted in an enclosure that meets the requirements of the National Electrical Code, ANSI/NFPA 70, and ANSI/ISA-61010-1 (82.02.01).



to use, self-documenting control environment that uses a plain English command set and a long tagname database shared by all FactoryFloor components. SNAP-LCSX and LCSX-PLUS also work with Opto 22's Classic 16-bit software: Cyrano, Mistic MMI, and Mistic Data Server (MDS).

Communication Options (Standard)

Serial ports are top-mounted on the controller and feature removable European-style screw terminals.

The SNAP-LCSX has the following communication ports:

- One RS-232 or RS-485 serial port (2-wire or 4-wire), up • to 115.2kBd
- One dedicated Opto 22 remote I/O port (2-wire RS-485 • with interrupt capability)

The LCSX-PLUS includes two additional communication ports, RS-232 or RS-485 (2-wire or 4-wire).

Interface Options (Adapter Cards)

The SNAP-LCSX and SX-PLUS are not expandable.

I/O Connectivity

The RS-485 ports can be used as a serial link to communicate with remote digital and analog I/O units. Up to 4,096 I/O points can be connected to each communication port.

Memory Expansion Options

The RAM is used to store a user's control strategy (program) and data. The flash memory (ROM) stores a kernel (operating system) and can be used to store a control strategy permanently. The use of flash technology allows the user to remotely download new firmware offered by Opto 22.

- RAM: 1M, not expandable
- ROM: 256K, not expandable •

Power Supplies

A 5VDC power supply is required. The Opto 22 SNAP PS5 power supply can provide sufficient power for the controller, a B3000 brain, 32 digital I/O points, and up to 8 analog I/O points.

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CONTROLLERS

	to 400W.
Real-time clock	Clock/calendar, Epson 646
Power requirements	5VDC +/- 5% at 500 mA (I
Typical operating temperature	0° C to 70° C
Storage temperature	-40° C to 85° C
Humidity	5% to 95% relative humidi
Software	FactoryFloor (OptoControl Classic software (Cyrano,
System monitor	Processor and power wate

Specifications [Obsolete]

Item

OPTO 22

DATA SHEET

CPU clock frequency

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CPU

Memory RAM 1 MB with battery backup Flash ROM 256 KB RAM/clock battery 3.6-volt lithium, non-rechargeable, user replaceable, p/n G4BATT32 I/O Opto 22 remote I/O using RS-485 COM 0: jumper selectable as RS-232 or RS-485, 2-wire or 4-wire. Modem control Communication signals are present for RS-232 (RTS, CTS, DTR, DCD, and RI). Pull-up, pull-down, and termination are jumper selectable for RS-485 operation, allowing multidrop operation. COM 1: dedicated Opto 22 remote I/O port (2-wire RS-485 with interrupt capability) COM 2 and COM 3 (LCSX-PLUS only): jumper selectable RS-232 or RS-485. RS-232 signals include TX, RX, RTS, and CTS. RS-485 is either 2-wire or 4-wire, with selectable termination and biasing. bise slew-rate-limited drivers and are transient protected 613 with battery backup maximum) ity, non-condensing , OptoDisplay, OptoServer, and OptoConnect) and Mistic MMI, and MDS) chdog timers

32-bit Motorola 68EC020 processor

16.67 MHz

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Specification

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DATA SHEET

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Din Rail Mounting and Dimensions

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SNAP

CONTROLLERS

OPTO 22 DATA SHEET Form 1047-230222 Jumper Settings Shaded entries show default settings. For more int

Shaded entries show default settings. For more information, see the *SNAP*-*LCSX and LCSX-PLUS Installation Guide*, Opto 22 form number 1061.

Jumper(s)	Description		Pos	ition		Setting]
			I	n		Run from RAM]]
E/R	EEPROM/RAM	Out		Run from EEPROM			
		In				Autoboot enabled	
Auto	Autoboot		0	ut		Autoboot disabled	
XO	Communication		I	n		Binary	
7.0	Communication		С	Out		ASCII	
X1	Boot Loader	In				Boot to kernel	
	Door Loader	Out		Boot to loader			
		F	10	ŀ	-11		
H0, H1	Host Port	I	n	I	n	СОМО	
		0	ut		n	COM1	
		0	1	2	3		
		Out	In	In	In	115.2 KBd	
		In	Out	In	In	76.8 KBd	
		Out	Out	In	In	57.6 KBd	
	Baud Rate	In	In	Out	In	38.4 KBd	
Baud 0-3		Out	In	Out	In	19.2 KBd	
		In	Out	Out	In	9600 Bd	
		Out	Out	Out	In Out	4800 Bd	
				III In	Out	2400 Bd	
		In	Out	In	Out	600 Bd	
		Out	Out	In	Out	300 Bd	
		out	Bit	0 In	out	1	
	Address Bits			Bit 1 In		2	
			Bit 2 In		4		
		Bit 3 In				8	
Address 0-7		Bit 4 In		16	11		
		Bit 5 In				32	See next page for additional
		Bit 6 In				64	Information on address jumpers.
			Bit	7 In		128]

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Address

Address Jumpers (Address 0-7)

Use these jumpers to select an 8-bit address from 0 to 255 (0 to FF hexadecimal). The factory default is 1. The most significant bit is 7 and the least significant bit is 0.

76543210	76543210	76543210	76543210	76543210	76543210	76543210	76543210
 XXXXXXXXX 	32	64	96	128	160	192	224
1	33 []]	65 [[[[[[[[[[[[[[[[[[[97	129	161	193	225
2	34	66 [][]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]	98	130	162	194	226
3	35	67	99	131	163	195	227
4	36	68	100	132	164	196	228
5	37	69	101	133	165	197	229
6	38	70	102	134	166	198	230
7	39 🗌 🖉 🗌 🖉	71	103	135	167	199	231
8	40	72	104	136	168	200	232
9	41	73	105	137	169	201	233
10	42	74	106	138	170	202	234
11	43	75	107	139	171	203	235
12	44	76	108	140	172	204	236
13	45	Π	109	141	173	205	237
14	46	78	110	142	174	206	238
15	47	79	111	143	175	207	239
16	48	80	112	144	176	208	240
17	49	81	113	145	177	209	241
18	50	82	114	146	178	210	242
19	51	83	115	147	179	211	243
20	52	84	116	148	180	212	244
21	53	85	117	149	181	213	245
22	54	86	118	150	182	214	246
23	55	87	119	151	183	215	247
24	56	88	120	152	184	216	248
25	57	89	121	153	185	217	249
26	58	90 	122	154	186	218	250
27	59 📋 🖉 🖉	91	123	155	187	219	251
	60 	92	124	156	188	220	252
29	61 🗌 🖉	93	125	157	189	221	253
30 [[[]]	62	94 🛛 🗖 🖉 🖉	126	158	190	222	254
31	sa ∐ _ ∎∎∎∎ ∎	95	127	159	191	223	255

= JUMPER INSTALLED

= NO JUMPER

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More about Opto 22

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 webbased 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 even write an IEC 61131-3 compliant control program to run on *groov* RIO, using CODESYS. 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

Opto 22's California-based Product Support Group offers free technical support for Opto 22 products from engineers with decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

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.

PURCHASING OPTO 22 PRODUCTS

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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