

# PROGRAMMABLE LOGIC RELAYS

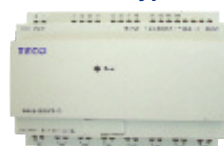


from  
**\$79**  
**TECO**

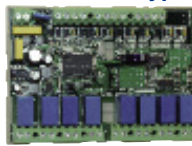


**NEW!**  
**12V Power!**

Blind Type



Bareboard Type



Expansion Modules



## Product Features

Simple yet powerful, dependable yet affordable. The SG2 Series PLR includes the needed features at the industry's lowest price. Why pay more when this controller offers all you need?

### Multiple I/O Configurations

- IP20 enclosed case with LCD and keypad or bare-board models, DIN-rail or panel mount
- AC and DC inputs; DC Transistor and Relay outputs
- Built-in 2 channel high-speed DC inputs (1 kHz) for single channel encoder or pulse catch
- PWM DC output, 1 CH / 16-bit
- Integrated 10-bit Analog Input (0-10V) available
- 4 line x 12 character LCD with keypad for program modification, preset changes, and text message display
- Retentive Flash Memory - programs are safely stored in memory, even during extended power loss.
- Built-in RTC (Real-time Clock) on all models
- Super Capacitor backup, no battery required.
- Removable Spare Memory Cartridge
- Store programs and timer/counter values for easy backup or transfer
- Program Memory: 200 lines or 99 Function Blocks, 15 Timers, 15 Counters, 15 RTC, 15 Compares

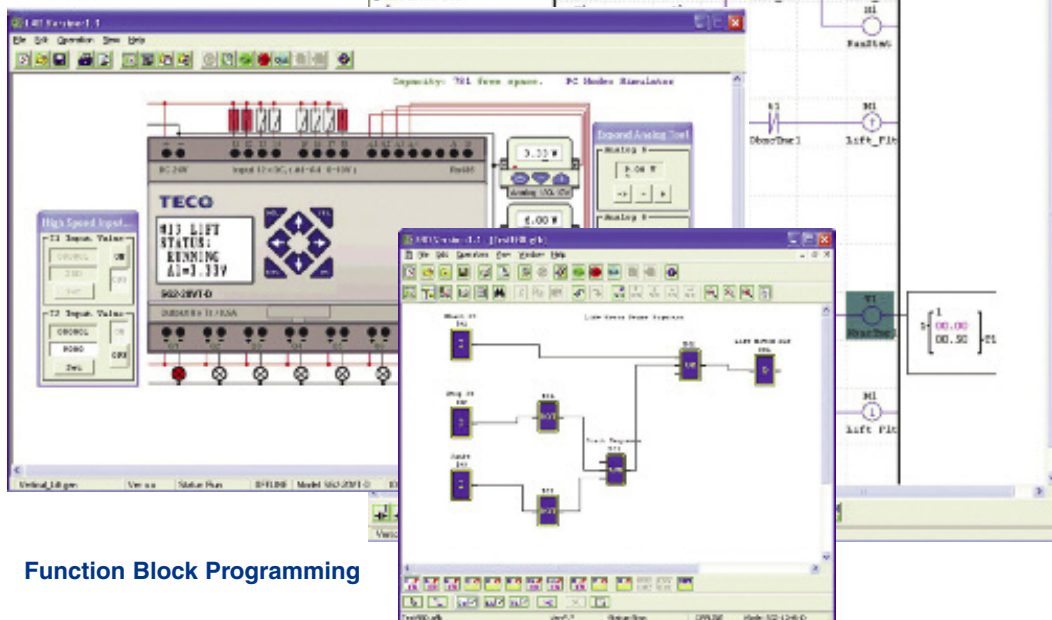
Part #	Input Power	Inputs	Outputs	Display	Communications	Max I/O*	Price
SG2-12HR-12D	12 VDC	6 DC, 2 Analog	4 Relay	✓	N/A	12	<b>\$97</b>
SG2-20HR-12D		8 DC, 4 Analog	8 Relay	✓	N/A	12	<b>\$136</b>
SG2-12HR-D		6 DC, 2 Analog	4 Relay	✓	Optional	36	<b>\$79</b>
SG2-12HT-D		6 DC, 2 Analog	4 Trans.	✓	Optional	36	<b>\$90</b>
SG2-20HR-D	24 VDC	8 DC, 4 Analog	8 Relay	✓	Optional	44	<b>\$121</b>
SG2-20HT-D		8 DC, 4 Analog	8 Trans.	✓	Optional	44	<b>\$136</b>
SG2-20VR-D		8 DC, 4 Analog	8 Relay	✓	Built-in MODBUS	44	<b>\$146</b>
SG2-20VT-D		8 DC, 4 Analog	8 Trans.	✓	Built-in MODBUS	44	<b>\$146</b>
SG2-10HR-A	85-240 VAC	6 AC	4 Relay	✓	N/A	34	<b>\$89</b>
SG2-20HR-A		12 AC	8 Relay	✓	N/A	44	<b>\$136</b>
Expansion Modules							
SG2-8ER-D	24VDC	4 DC	4 Relay	N/A	N/A	N/A	<b>\$49</b>
SG2-8ET-D		4 DC	4 Trans.	N/A	N/A	N/A	<b>\$55</b>
SG2-8ER-A	85-240VAC	4 AC	4 Relay	N/A	N/A	N/A	<b>\$59</b>
SG2-4AI	12-24 VDC	4 Analog	N/A	N/A	N/A	N/A	<b>\$99</b>
SG2-MBUS	24 VDC	Communications Module, RS-485 MODBUS-RTU					<b>\$132</b>
OEM "Blind" Models, No Keypad, No Display							
SG2-12KR-D	24VDC	6 DC, 2 Analog	4 Relay	N/A	N/A	12	<b>\$66</b>
SG2-20KR-D		8 DC, 4 Analog	8 Relay	N/A	N/A	20	<b>\$88</b>
SG2-10KR-A	85-240VAC	6 AC	4 Relay	N/A	N/A	10	<b>\$73</b>
SG2-20KR-A		12 AC	8 Relay	N/A	N/A	20	<b>\$96</b>
OEM "Bareboard" Models, No Keypad, No Display, No Expansion							
SG2-12CR-D	24VDC	6 DC, 2 Analog	4 Relay	N/A	N/A	12	<b>\$57</b>
SG2-20CR-D		8 DC, 4 Analog	8 Relay	N/A	N/A	20	<b>\$75</b>
SG2-10CR-A	85-240VAC	6 AC	4 Relay	N/A	N/A	10	<b>\$65</b>
SG2-20CR-A		12 AC	8 Relay	N/A	N/A	20	<b>\$79</b>
Accessories							
SG2-PL01	SG2 Programming Cable						<b>\$19</b>
SG2-PM05	SG2 Memory cartridge						<b>\$10</b>
SG2-SW	SG2 Programming software. Available on CD or <b>FREE</b> via download from Web						<b>\$8</b>
FM-USB232A	IOGEAR USB to Serial (DB-9 male) Converter Cable, 14 in. cable length						<b>\$28</b>

## FREE Software Download

Fully functional programming software. No demo time-outs. Registered users can download at [www.factorymation.com](http://www.factorymation.com).

## Relay Ladder Logic Programming

## Simulation, online monitoring, and testing



## Function Block Programming



**FREE Ground Shipping!\***  
for online orders over \$500



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## General Specifications

Power Supply	
Input Power Voltage Range	12VDC Models: 10.4-14.4V 24VDC Models: 20.4-28.8V 110/220VAC: 85-265VAC
Power Consumption	12VDC: 12-point, 150mA 20-point: 150mA 24VDC: 12-point, 90mA 20-point: 150mA 100-240VAC: 90mA
Wire Size (all terminals)	26 to 14 AWG
Programming	
Programming languages	Ladder/Function Block
Program Memory	200 Lines or 99 Function Blocks
Programming storage media	Flash
Execution Speed	10ms/cycle
LCD Display	4 lines x 12 characters
Timers	
Maximum Number	15
Timing ranges	0.01s-9999min
Counters	
Maximum Number	15
Highest count	999999
Resolution	1
RTC (Real Time Clock)	
Number available	15
Resolution	1min
Time span available	week, year, month, day, hour, min
Compare Instructions (Analog, Timer, or Counter Values)	
Number available	15
Compare versus other inputs	Timer, Counter, or Numeric values
Environmental	
Enclosure Type	IP20
Maximum Vibration	1G according to IEC60068-2-6
Operating Temperature Range	32° to 131°F (0° to 55°C)
Storage Temperature Range	-40° to 158°F (-40° to 70°C)
Maximum Humidity	90% (Relative, non-condensing)
Vibration	0.075mm amplitude 1.0g acceleration
Weight	10-point: 230g 8-point: 190g 20-point: 345g
Agency Approvals	cUL , CE, UL

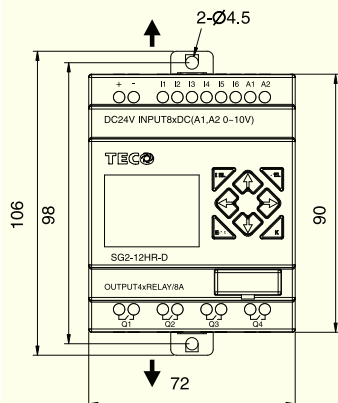
Discrete Inputs	
Current consumption	4mA @ 12VDC 3.2mA @ 24VDC 1.3mA @ 100-240VAC
Input Signal "OFF" Threshold	12VDC: < 2.5VDC; 24VDC: < 5VDC; 110/220VAC: < 40VAC
Input Signal "ON" Threshold	12VDC: > 7.5VDC; 24VDC: > 15VDC; 110/220VAC: > 79VAC
Input On delay	DC: 5ms; 240VAC: 50ms; 120VAC: 90ms
Input Off Delay	DC: 3ms; 240VAC: 50ms; 120VAC: 90ms
Transistor Type	3-wire PNP Sensor compatible
High Speed Input frequency	1kHz
Standard Input frequency	< 40 Hz
Required protection	Inverse voltage protection required
Analog Inputs	
Resolution	10 bit
Voltage Range acceptable	Analog input: 0-10VDC, 24VDC when used as discrete input
Input Signal "OFF" Threshold	< 5VDC (as 24VDC discrete input)
Input Signal "ON" Threshold	> 9.8VDC (as 24VDC discrete input)
Isolation	None
Short circuit protection	Yes
Total number available	A1-A8
Relay Outputs	
Contact material	Ag Alloy
Current rating	8A
HP rating	1/3HP @ 120V 1/2HP @ 250V
Maximum Load	Resistive: 8A/point; Inductive: 4A/point
Maximum operating time	15ms (normal condition)
Life expectancy (rated load)	100k operations
Minimum load	16.7mA
Transistor Outputs	
PWM max. output frequency	0.5kHz (1ms on, 1ms off)
Standard max. output frequency	100Hz
Voltage specification	10-28.8VDC
Current capacity	1A
Maximum Load	Resistive: 0.5A/point; Inductive: 0.3A/point
Minimum Load	0.2mA

## Communication Options

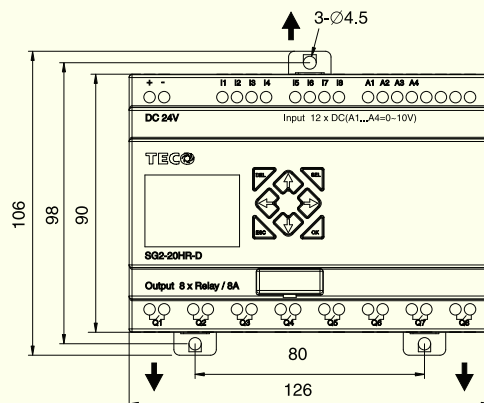
Built-in RS485 Communication (SG2-20Vx-x units only)	
Modbus-RTU	Slave mode only, 38.4kb, supports Modbus function codes 3, 6, 8, 16
DataLink	Link up to 3 SG2-20Vx-x units (1-master, 2-slaves) at 38.4kb
Remote-I/O	Link up to 8 Remote-I/O slave units (SG2-20Vx-x only) to 1-master unit at 8.4kb
SG2-MBUS Slave Communication Expansion Module	
Modbus-RTU	Slave mode only, 4.8kb - 38.4kb dip switch selectable, supports Modbus function codes 3, 6, 8, 16, maximum 1 module per SG2 main unit.

## Dimensions

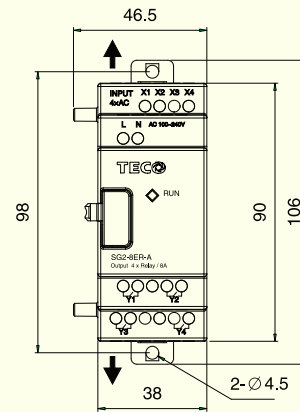
10/12-point Models



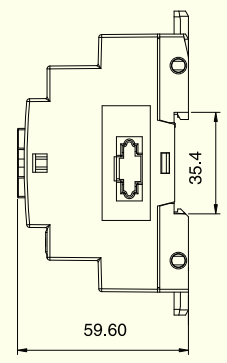
20-point Models



Expansion Modules



All Modules



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