

# TECO SG2 (V3) Programmable Relay Specifications

## General Specifications

|  |   |
|--|---|
| <b>Power Supply</b>  |   |
| Input Power Voltage Range                                      | 12VDC Models: 10.4-14.4V<br>24VDC Models: 20.4-28.8V<br>110/220VAC: 85-265VAC                             |
| Power Consumption  | 12VDC: 12-point, 150mA<br>20-point: 150mA<br>24VDC: 12-point, 90mA<br>20-point: 150mA<br>100-240VAC: 90mA |
| Wire Size (all terminals)                                      | 26 to 14 AWG  |
| <b>Programming</b>   |   |
| Programming languages  | Ladder/Function Block   |
| Program Memory   | 300 Lines or 260 Function Blocks  |
| Programming storage media                                      | Flash   |
| Execution Speed  | 10ms/cycle  |
| <b>Built-in HMI</b>  |   |
| Customizable screens   | 31 (H coils)  |
| LCD Display  | 4 lines x 16 characters   |
| Function Keys  | 8, 4 user-defined (Z inputs)  |
| <b>Auxiliary Coils</b>   |   |
| Maximum Number   | 126 (63 M-coils, 63 N-coils)  |
| <b>Timers</b>  |   |
| Maximum Number   | 31 T-coils  |
| Timing ranges  | 0.01s-9999min   |
| <b>Counters</b>  |   |
| Maximum Number   | 31 C-coils  |
| Highest count  | 999999  |
| <b>RTC (Real Time Clock)</b>                                   |   |
| Number available   | 31 R-coils  |
| Resolution   | 1 min   |
| Time span available  | week, year, month, day, hour, min   |
| Daylight Savings feature                                       | Yes   |
| Power off RTC retention  | 240 hours   |
| <b>Compare Instructions (Analog, Timer, or Counter Values)</b> |   |
| Number available   | 31 G-coils  |
| Compare functions  | EQ, LT, GT, LE, GE, NE  |
| <b>NEW! PID Control (Proportional-Integral-Derivative)</b>     |   |
| Maximum Number   | 15 Loops (PI Coils)   |
| <b>NEW! Math Instructions</b>                                  |   |
| Number available   | 62 (31 AS Coils, 31 MD Coils) up to 124 additional (plus unused T, C, R, G coils)                         |
| Math Operations  | + - x /   |
| <b>Data Multiplexer Instructions</b>                           |   |
| Number available   | 15 (MX Coils)   |
| Resolution   | 2-bit, 4 data registers   |
| <b>Data Registers</b>  |   |
| Number available   | 240 (DR Coils, 16-bit)  |
| <b>Shift Instruction</b>                                       |   |
| Number available   | 1 8-bit (S Coil)  |
| <b>Analog Ramp Instructions</b>                                |   |
| Number available   | 31 (AR Coils)   |
| <b>Environmental</b>   |   |
| Enclosure Type   | IP20  |
| Maximum Vibration  | 1G according to IEC60068-2-6  |
| Operating Temperature Range                                    | -4° to 131°F (-20° 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   |

|   |  |
|---|--|
| <b>Discrete Inputs</b>                              |  |
| Current consumption                                 | 4mA @ 12VDC<br>3.2mA @ 24VDC<br>1.3mA @ 100-240VAC   |
| Input Signal "OFF" Threshold                        | 12VDC: < 2.5VDC; 24VDC: < 5VDC;<br>110/220VAC: < 40VAC   |
| Input Signal "ON" Threshold                         | 12VDC: > 7.5VDC; 24VDC: > 15VDC;<br>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  |
| <b>Analog Inputs</b>                                |  |
| Resolution  | 10 bit   |
| Acceptable Input Range                              | Base module: Analog input: 0-10VDC voltage, 24VDC when used as discrete input<br>Expansion module: Analog input: 0-10VDC voltage or 0-20mA current |
| 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                              | Base module: A01-A04<br>Expansion module: A05-A08  |
| <b>Temperature Input (SG2-4PT Expansion Module)</b> |  |
| Sensor Type   | 3-wire PT100   |
| Temperature input range                             | -100°C - 600°C   |
| Resolution  | 3.5°C  |
| <b>Relay Outputs</b>                                |  |
| 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   |
| <b>Transistor Outputs</b>                           |  |
| Pulse Outputs                                       | 1 PWM and 1 PWM or Pulse Output  |
| 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  |
| <b>Analog Outputs (SG2-2AO Expansion Module)</b>    |  |
| Analog output range                                 | 0V-10V (load > 500 ohm), 0-20mA (load < 500 ohm)   |
| Resolution  | 10-bit   |
| Full scale accuracy                                 | 2.5%   |

## Communication Options

|   |   |
|---|---|
| <b>Built-in RS485 Communication (SG2-20Vx-x units only)</b> |   |
| Modbus-RTU  | Master/Slave mode, 4800-115.2kb, supports Modbus function codes 1, 3, 5, 6, 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 |

## Dimensions

