## G9SP

The G9SP safety controller provides all local safety based in- and outputs and controls the safety application.

- Three CPU-types to suit different applications
- Clear diagnosis and monitring via Ethernet or Serial connection
- Memory cassette for easy duplication of configuration
- Unique programming software to support easy design, verfication, standardization and reusage of the program.
- Certified according to PLe (EN ISO 13849-1) and SIL 3 (IEC 61508)

## Ordering information

| Appearance | Appearance description | Order code |
|---|---|---|
| Standalone Safety Controller | 10 PNP safety inputs<br>4 PNP safety outputs<br>4 test outputs<br>4 PNP standard outputs | G9SP-N10S |
| | 10 PNP safety inputs<br>16 PNP safety outputs<br>6 test outputs | G9SP-N10D |
| | 20 PNP safety inputs<br>8 PNP safety outputs<br>6 test outputs | G9SP-N20S |

### Software

| Appearance | Media | Applicable OS | Order code |
|---|---|---|---|
| G9SP configurator | Setup disk 1 license | Windows 2000<br>Windows XP<br>Windows Vista | WS02-G9SP01-V1 |
| | Setup disk 10 licenses | | WS02-G9SP10-V1 |
| | Setup disk 50 licenses | | WS02-G9SP50-V1 |
| | Setup disk Site license | | WS02-G9SPXX-V1 |

### Expansion units (standard I/O)

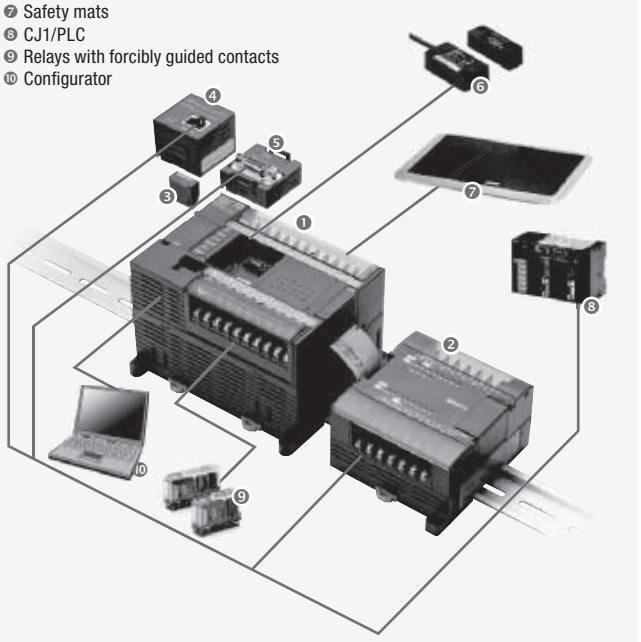
| Appearance | Type | Number of I/O | | Model |
|---|---|---|---|---|
| | | In | Out | |
| Expansion I/O unit | Sinking | 12 | 8 (solid state) | CP1W-20EDT |
| | Sourcing | 12 | 8 (solid state) | CP1W-20EDT1 |
| | Sinking | - | 32 (solid state) | CP1W-32ET |
| | Sourcing | - | 32 (solid state) | CP1W-32ET1 |
| I/O Connecting cable, 80 cm long | | | | CP1W-CN811 |

### Option units

| Appearance | Order code |
|---|---|
| RS-232 Option Board | CP1W-CIF01 |
| Ethernet Option Board (Ver. 2.0 or later) | CP1W-CIF41 |
| Memory Cassette | CP1W-ME05M |

### G9SP configuration

❶ Safety controller G9SP
❷ Expansion I/O Units
❸ Memory cassette
❹ Ethernet option board
❺ RS-232C option board
❻ Compact non-contact door switch
❼ Safety mats
❽ CJ1/PLC
❾ Relays with forcibly guided contacts
❿ Configurator



## Specifications

### General specifications

| | | |
|---|---|---|
| Power supply voltage | | 20.4 to 26.4 VDC (24 VDC -15% +10%) |
| Consumption current | G9SP-N10S | 400 mA (V1: 300 mA, V2: 100 mA) |
| | G9SP-N10D | 500 mA (V1: 300 mA, V2: 200 mA) |
| | G9SP-N20S | 500 mA (V1: 400 mA, V2: 100 mA) |
| Mounting method | | 35-mm DIN track |
| Ambient operating temperature | | 0°C +55°C |
| Ambient storagetemperature | | -20°C +75°C |
| Degree of protection | | IP20 (IEC 60529) |

### Safety input specifications

| | |
|---|---|
| Input type | Sinking inputs (PNP) |
| ON voltage | 11 VDC min. between each input terminal and G1 |
| OFF voltage | 5 VDC max. between each input terminal and G1 |
| OFF current | 1 mA max. |
| Input current | 6 mA |

### Safety output specifications

| | |
|---|---|
| Output type | Sourcing outputs (PNP) |
| Rated output current | 0.8 A max. per output* |
| Residual voltage | 1.2 V max. between each output terminal and V2 |

### Test output specifications

| | |
|---|---|
| Output type | Sourcing outputs (PNP) |
| Rated output current | 0.3 A max. per output* |
| Residual voltage | 1.2 V max. between each output terminal and V1 |

### Standard output specifications (G9SP-N10S)

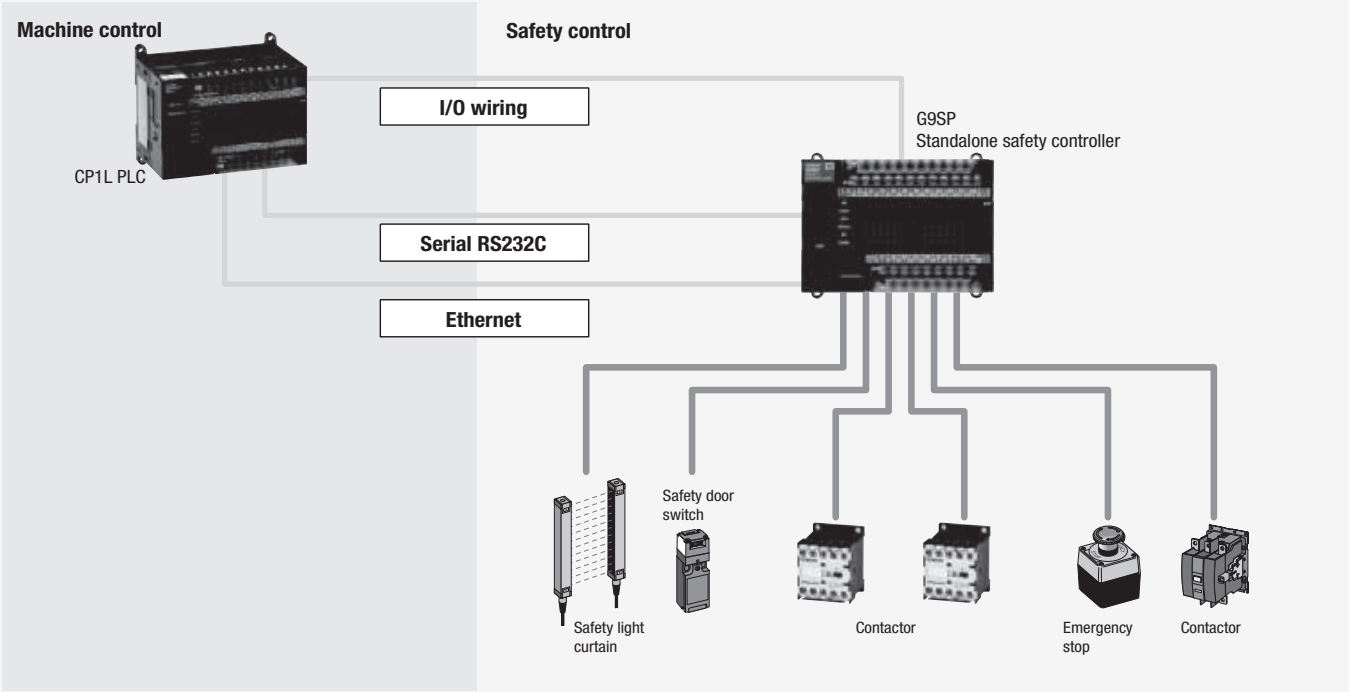
| | |
|---|---|
| Output type | Sourcing outputs (PNP) |
| ON Residual voltage | 1.5 V max. (between each output terminal and V2) |
| Rated output current | 100 mA max.* |

*For details on the rated output current, please refer to the user manual of G9SP.

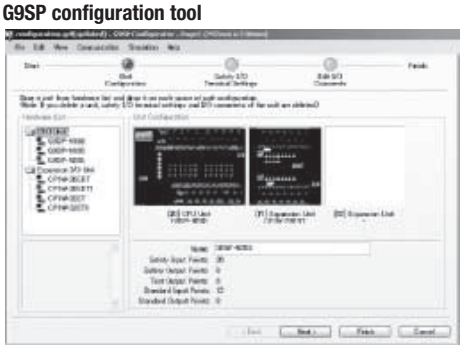
## Control system integration

### Safety - I/O-status becomes transparent

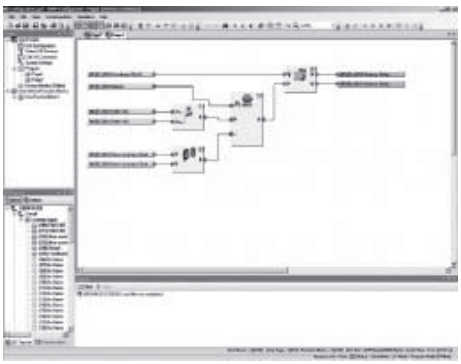
The standalone Safety Controller offers diagnosis information in 3 ways:
1) via parallel wiring
2) via serial RS232C interface (option)
3) via Ethernet interface (option).
Information of all safety in- and outputs on the standard control system ensure minimum downtime of the machine.



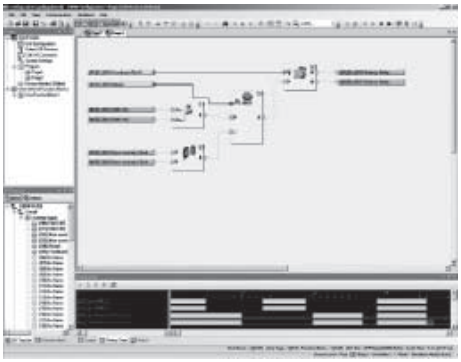

### G9SP configuration tool



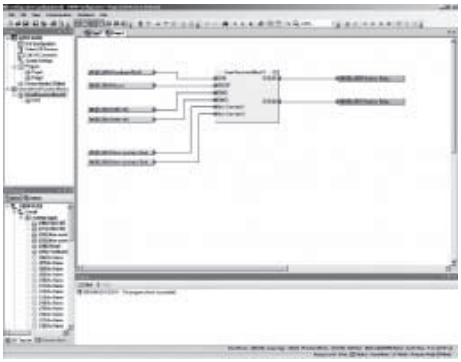
Easy setup and configuration is provided by a setup wizard supporting the hardware selection.



**User-defined function blocks**
Approved configuration elements such as a tested door monitoring solution can be easily stored as a user defined function block and re-used in future projects. This minimises the time it takes to create a new system configuration.

**Integrated Simulator**
All functions can be tested and simulated in the Configuration Tool, so there's no unnecessary additional workload for the engineer. In addition, on-line diagnosis reduces debug time to a minimum during implementation in the machine control system.



**Knowledge-building**
Existing configurations are the basis for new projects. The G9SP Configuration Tool supports re-use of existing and proven know-how in safety control, as well as user-defined function blocks. Which means no more repetition of effort, instead a growing library of safety solutions.

## Functions

### Function Blocks

#### Logic Functions

| Function Block Name | Notation on Function List | Icon |
|---|---|---|
| NOT | NOT |  |
| AND | AND |  |
| OR | OR |  |
| NAND | NAND |  |
| NOR | NOR |  |
| Exclusive OR | EXOR |  |
| Exclusive NOR | EXNOR |  |
| RS-FF (Reset SetFlip-Flop) | RS-FF |  |
| Comparator | Comparator |  |
| Comparator 2 | Comparator2 |  |

#### Timer/Counter Functions

| Function Block Name | Notation on Function List | Icon |
|---|---|---|
| Off-Delay Timer | Off-Delay Timer |  |
| On-Delay Timer | On-Delay Timer |  |
| Pulse Generator | Pulse Generator |  |
| Counter | Counter |  |
| Up-Down Counter | Up-Down Counter |  |
| Serial-Parallel Converter | Serial-Parallel Converter |  |

#### Safety Device Function Blocks

| Function Block Name | Notation on Function List | Icon |
|---|---|---|
| External Device Monitoring | EDM |  |
| Enable Switch Monitoring | Enable Switch |   |
| Emergency Stop Switch Monitoring | E-Stop |  |
| Light Curtain Monitoring | Light Curtain Monitoring |  |
| Muting | Muting |   |
| Safety Gate Monitoring | Safety Gate Monitoring |  |
| Two Hand Controller | Two Hand Controller |  |
| User Mode Switch Monitoring | User Mode Switch |  |
| Redundant Input Monitoring | Redundant Input |  |
| Single Beam Safety Sensor | Single Beam Safety Sensor |  |
| Non-Contact Door Switch Monitoring | Non-Contact Door Switch |  |
| Safety Mat Monitoring | Safety Mat |  |

#### Reset and Restart Function Blocks

| Function Block Name | Notation on Function List | Icon |
|---|---|---|
| Reset | Reset |   |
| Restart | Restart |   |

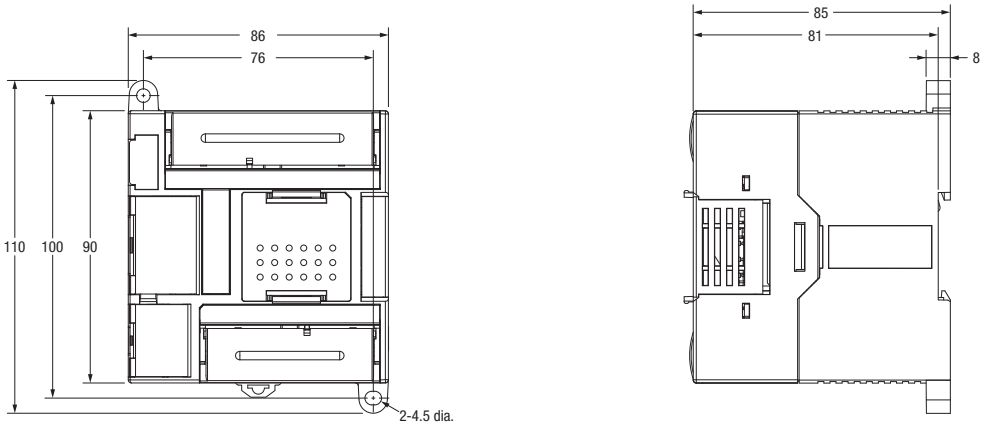
#### Connector Function Blocks

| Function Block Name | Notation on Function List | Icon |
|---|---|---|
| Multi Connector | Multi Connector |  |
| Routing | Routing |  |

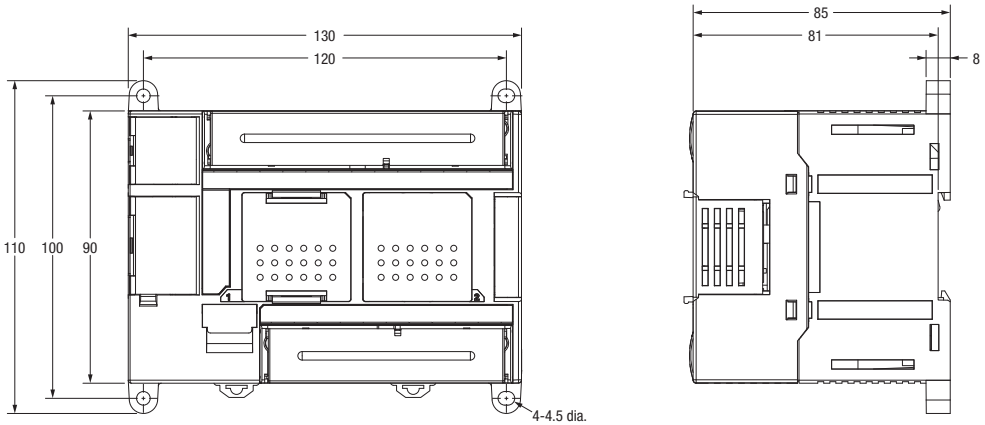
## Dimensions

### Safety Controller

**G9SP-N10S**




**G9SP-N10D/G9SP-N20S**



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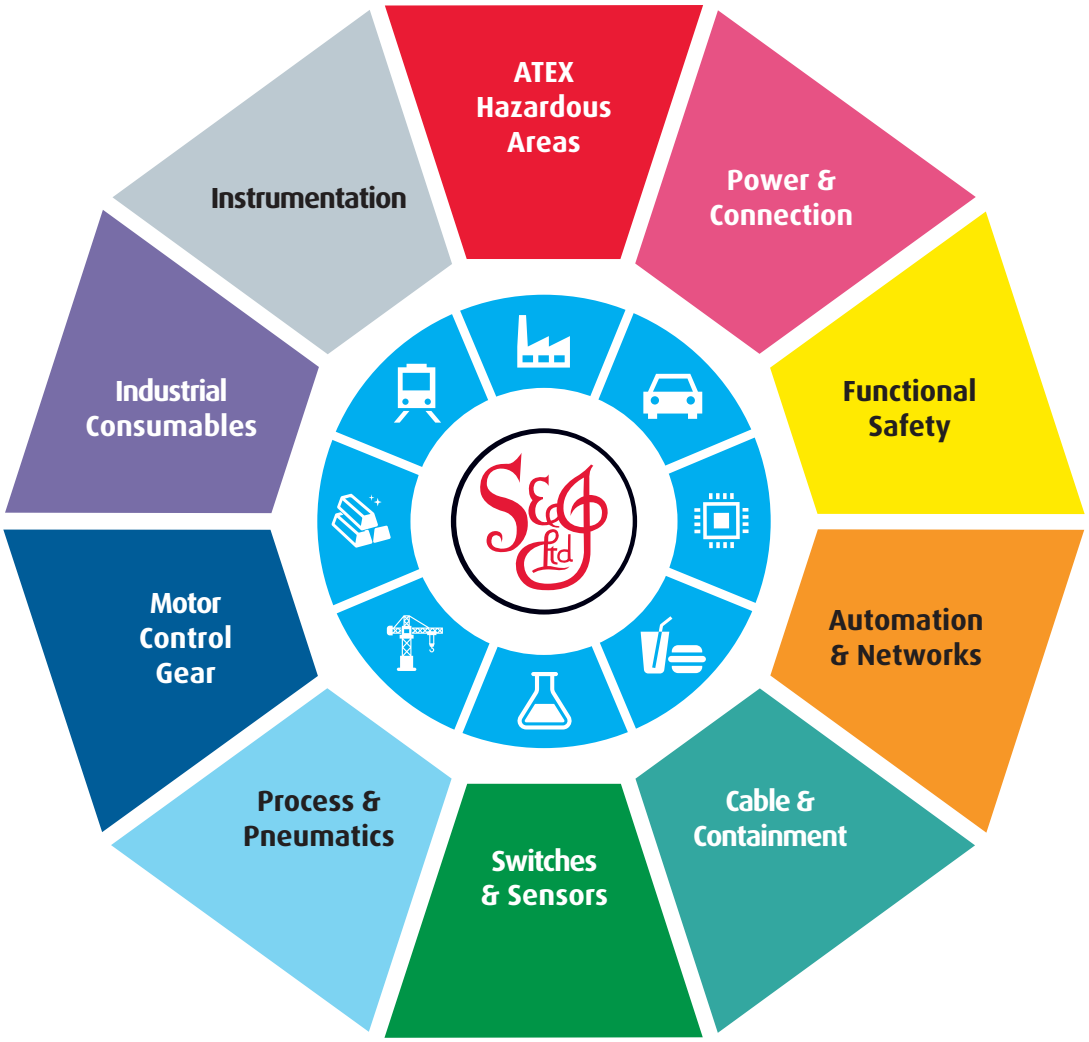


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