

# 9010/9020 SIL

Control System



SIL 2  
Suitable



9020 SIL wall mount

*Because every life has a **purpose**...*

# The Compact Autonomous Gas Detection System

MSA's gas detection systems are used throughout the world to protect plant and personnel from hazardous gases in a wide range of industries. When personnel monitoring is not available or suitable, permanently installed detection systems are used for continuous monitoring.

As a part of a gas warning system, our **9010/9020 SIL** controller offers a maximum flexibility in conjunction with a wide variety of detectors. It operates with either one (9010) or two (9020) independent channels per control module which makes it logically independent, highly economical and therefore best suited for smaller gas detection installations. The dual channel capability allows a high density packaging of up to 20 points in a single 19" rack.

Its new SIL compliant design offers a higher safety function to increase the protection level for facilities and people. A high level of reliability is ensured as each control module is fitted with an independent AC/DC power supply unit and logic circuit with software validated according to ATEX Directive.

## Features

- SIL 2 suitable
- Improved menu navigation (additional ESC key)
- One hardware configuration for all detectors
- Re-configuration of controllers is performed by a software menu
- Every module has its own power supply
- Universal power supply with improved power distribution to connected sensors
- Backwards compatibility (works together with former 9010/9020 version)
- Independent LCD display available for each channel
- RS485 for Modbus RTU with improved documentation
- Ethernet for Modbus TCP
- Diagnostic via device's own website
- 19" rack and wall mount design
- Modular plug-in design with either one or two independent channels per module allows to operate up to 20 channels per 19" rack
- Upgraded resistance against Electromagnetic Interference (EMI/ EMC)
- Wall mount:
  - Polycarbonate material
  - IP65
  - Perforated cable entries



9010/9020 SIL rack modules



LCD Display



9020 SIL wall mount



9010/9020 SIL 19" rack, 5 modules

## Benefits

- New functional safety level improves on security for facilities and people
- Minimized risk of false programming
- Wide range of MSA gas detectors applicable
- Controller can be configured without the use of tools (operation by access codes)
- Error and failure messages on the display warn of any operating anomalies
- Display of extended and improved diagnostic data
- Quick configuration check possible
- If a detector needs to be changed, no new controller card is required (re-configure existing controller)
- Satisfies a variety of gas monitoring applications

## Technical Specifications

Power supply			
AC supply	100 VAC–240 VAC 50/60 Hz		
DC supply	24 VDC (19–32 VDC), ripple < 5 %		
Power consumption (no load)		9010 SIL	9020 SIL
AC supply	13 VA	15 VA	
DC supply	5 W	6 W	
Detector supply	3 W	4 W	
Constant current	100–450 mA	100–350 mA	
Constant voltage	24 VDC; 450 mA	24 VDC; 350 mA (4–20 mA transmitters)	
Sensor connection modes	2–3 wires		
Connection terminals	For wires up to 2.5 mm <sup>2</sup>		
Detector types	Passive catalytic detectors; 0 (4)–20 mA transmitters; Switch inputs		
Analog outputs	1x 0 (4)–20 mA (user configurable)	2x 0 (4)–20 mA (user configurable)	
	Max. loop resistance 500 Ohms		
Communication interface	RS485 half-duplex, Modbus RTU; Ethernet, 10/100 Mbps, Modbus TCP, Website		
Alarm thresholds	C [Caution] W [Warning] A [Alarm]		
Digital outputs			
Alarm relays	2x SPDT relay 8 A/250 VAC, resistive load, load current 10 mA–1.6 A, applies to WARNING and ALARM		
Failure relays	1x SPDT relay 8 A/250 VAC, resistive load, load current 10 mA–1.6 A		
Horn relay	1x SPDT relay 8 A/250 VAC, resistive load, load current 10 mA–1.6 A		
Opto-isolated output	30 mA, 24 VDC max, resistive load, related to CAUTION		
Alarm management			
Reset mode	Automatic or manual		
Alarm delay	0–600 s (for non ATEX mode only)		
Span and Zero drift	< ± 0.5 % f.s. ± 1 digit/month		
Accuracy (without sensor)	± 1% full scale ± 1 digit		
Operating temperature	–10° C to +55° C		
Storage temperature	–25° C to +60° C		
Humidity	Max. 90% R.H. non-condensing		
Vibrations	10–30 Hz, amplitude 1 mm, 31–100 Hz, max. acceleration 19.6 m/s <sup>2</sup>		
Display	Back lit LCD, 4-digit, 7-segments		
Optical alarms	LEDs		
Time-out setting	Automatic return to measurement after max. 6 minutes		
Configuration and log book data	Stored in nonvolatile memory		
Protections			
AC/DC in case of power failure	Redundant power inputs, automatic electronic switch over in case of main break down		
Diagnosis	Self-monitoring electronics		
Dimensions and weights			
Rack	10 modules	5 modules	2 modules
Weight	3 kg	1.8 kg	1.2 kg
Dimensions (W x H x D)	482.6 x 132.5 x 300 mm	279.5 x 132.5 x 300 mm	157.5 x 132.5 x 300 mm
Wall mount			
Weight	1.3 kg		
Dimensions (W x H x D)	255 x 180 x 90 mm		
Front panel size	3 U x 8 T.E.		

## Ordering Information

Controller	
10162570	Control unit 9010 SIL 19" rack module
10162570-DE	Control unit 9010 SIL 19" rack module (customized)
10162591	Control unit 9020 SIL 19" rack module
10162591-DE	Control unit 9020 SIL 19" rack module (customized)
10162592	Control unit 9010 SIL wall mounted
10162592-DE	Control unit 9010 SIL wall mounted (customized)
10162593	Control unit 9020 SIL wall mounted
10162593-DE	Control unit 9020 SIL wall mounted (customized)

Accessories	
10168375	19" Rack (2 modules)
10168380	19" Rack (5 modules)
10168390	19" Rack (10 modules)
10166724	Standard backplane terminal board
10175205	Blank Plate (40 mm)
10175206	Blank Plate (20 mm)
10174743	Set of fuses (10 pcs)
10173033	Set of cable glands M20 (8 pcs)

## Approvals & Standards

<b>Standards</b>	EN 61010:2011 (Low voltage directive) EN 50270:2015 (EMC) EN 60079-29-1:2007 (ATEX Performance) EN 50104:2010 (Oxygen Performance) EN 50271:2010 (Software) EN 61508:2010 (SIL 2; Functional safety)
<b>Approvals</b>	ATEX performance II (1) G (2) G Certificate BVS 16 ATEX G 001 X SIL 2 suitable Certificate TÜV



## MSA and General Monitors

Over 100 years of experience and capability in comprehensive safety solutions have made MSA a modern and forward-looking company for the protection of people, facilities, and the environment. MSA is one of the few suppliers of fixed gas and flame detection (FGFD) measurement technology that develops and manufactures a complete range of products and integrates them into safety solutions.

With the acquisition of General Monitors in September 2010, the MSA FGFD product portfolio expanded even further. As two unmatched experts in gas and flame detection joined forces, we are proving that the right mix of durable products and innovative technology can increase safety while driving operational efficiency.

Together MSA and General Monitors have the widest range of sensing technologies for gas and flame detection. We can create solutions that will not only provide worker safety and protect facilities, but will also decrease overall cost of ownership. While our customers still have access to the great products and service that they have come to rely on in the past, they now have access to so much more: superior service, improved support, a wider range of technology, and unique solutions enhanced by the combined strength of MSA and General Monitors.



Learn more at [MSAsafety.com/detection](https://MSAsafety.com/detection)

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