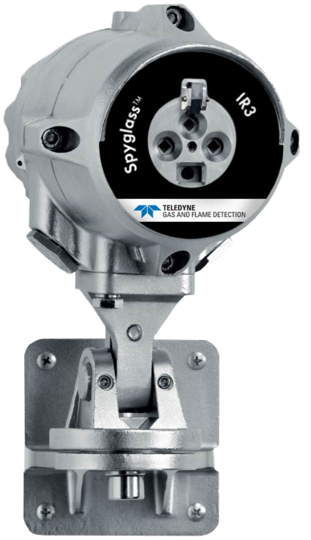
TELEDYNE
GAS AND FLAME DETECTION
Everywhereyoulook™

Manual

SPYGLASS MODBUS COMMUNICATION



SG50FMODBUS-EN Revision 1.0

User manuals in other languages are available on Website https://teledynegasandflamedetection.com

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All of the information that is provided in this document is accurate to the best of our knowledge.

As a result of continuous research and development, the specifications of this product may be changed without prior notice.

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1 Introduction

All SG50-F flame detectors can implement MODBUS RTU protocol on RS-485 serial communication. More details about MODBUS can be found on the website: https://modbus.org/

With the RS-485 serial communication it is possible to monitor the status of the detectors, receive fire alarms and change several settings in the detector function.

Up to 32 detectors can be connected to the same communication network using the Daisy Chain method by entering a separate MODBUS address for each detector.

By using repeaters, it is possible to connect up to 247 detectors on the same 4 wires (2 for power and 2 for communication), 32 detectors for each repeater.

2 Basic Requirements

Baud Rate: 9600 bps

Start bit: 1
Data Bits: 8
Parity: none
Stop Bit: 1

RS-485 Half Duplex (2 wire) without Echo
Up to 1000 meters, 120Ohm EOL resistor is required.
Twisted pair cable – STP (typically 120 Ohms)

3 Data definitions

3.1 Input Registers

The contents of MODBUS Input Registers (Read only) will be as listed in the table below:

Field	Register Address	Values	Description
Alarm Relay	0x0000	0 – No Alarm 1 – Alarm	Alarm state
Fault Relay	0x0001	0 – No Fault 1 – Fault	Fault state
BIT Status	0x0002	0x0001 - Dirty window fault 0x0002 - 24V power supply fault	Flags that indicate requirements for maintenance
0-20mA Current Output	0x0004 – 0x0005	Value outputted through the 0-20mA current output (in mA)	See Detector user manual
Ethernet IP	0x0006 – 0x0007		The IP address of the detector set by the DHCP server. (HD detectors only)
FGD detector identifier	0x0010	ASCII “FG”	All FGD detectors will return the same value indicating an FGD product on the bus
Detector Serial ID	0x0019 - 0x001A	u32	Serial ID of the detector
Detector Type	0x001B	u16	Indication of the detector type. Values: 101 - IR3-HD 110 - UV-IR (small) 120 - IR3 (small) 130 - UV-IR-HD 140 - IR3-H2-HD 150 - IR3-H2 160 - UV-IR-F 170 - UV-IR-F-HD

3.2 Holding Registers

The contents of MODBUS Holding Registers (Read – Write) will be as listed in the table below:

Field	Register	Values	Description
Sensitivity	0x0001		Detection sensitivity level: 0 – Low 1 – Medium 2 – High 3 - Extreme
Ultra-Fast Detection	0x0002	0 – Disabled 1 – Enabled	
Alarm Delay	0x0003	0 – for 0sec, 1 – for 5 sec, 2 – for 10sec, 3 – for 20sec, 4 – for 30sec	See detector user manual
Alarm Latch	0x0004	0 – No Latch 1 – Latch	See detector user manual
Window Heater	0x0005	0 – Heater Disabled 1 – Heater Enabled	
Video Enable	0x0006	0 – Video Disabled 1 – Video Enabled	For HD models only
Post Alarm Video Recording Duration	0x0007	1-3	For HD models only (in minutes)
Analog Video Output	0x0008	0 –Disabled 2 – NTSC 3 - PAL	For HD models only (in minutes)
Manual BIT Alarm – Output test	0x0009	0 – Disabled 1 – Enabled	See detector user manual
Detector MODBUS address	0x0020	1-247	
Manual BIT	0x0021		Setting 1 to this register will initiate am Manual BIT
Time and Date	0x0040		Hour and Minutes hh,mm (MSB,LSB)
	0x0041		Second and Year ss,yy
	0x0042		Month and Day MM,dd

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