



**An advanced World of  
intelligent gas detection  
system management**

# System 57



## A World of control technology

- High precision, intelligent control
- Master / voted alarm options
- High packing density
- Flexible I/O configuration
- Relay output options

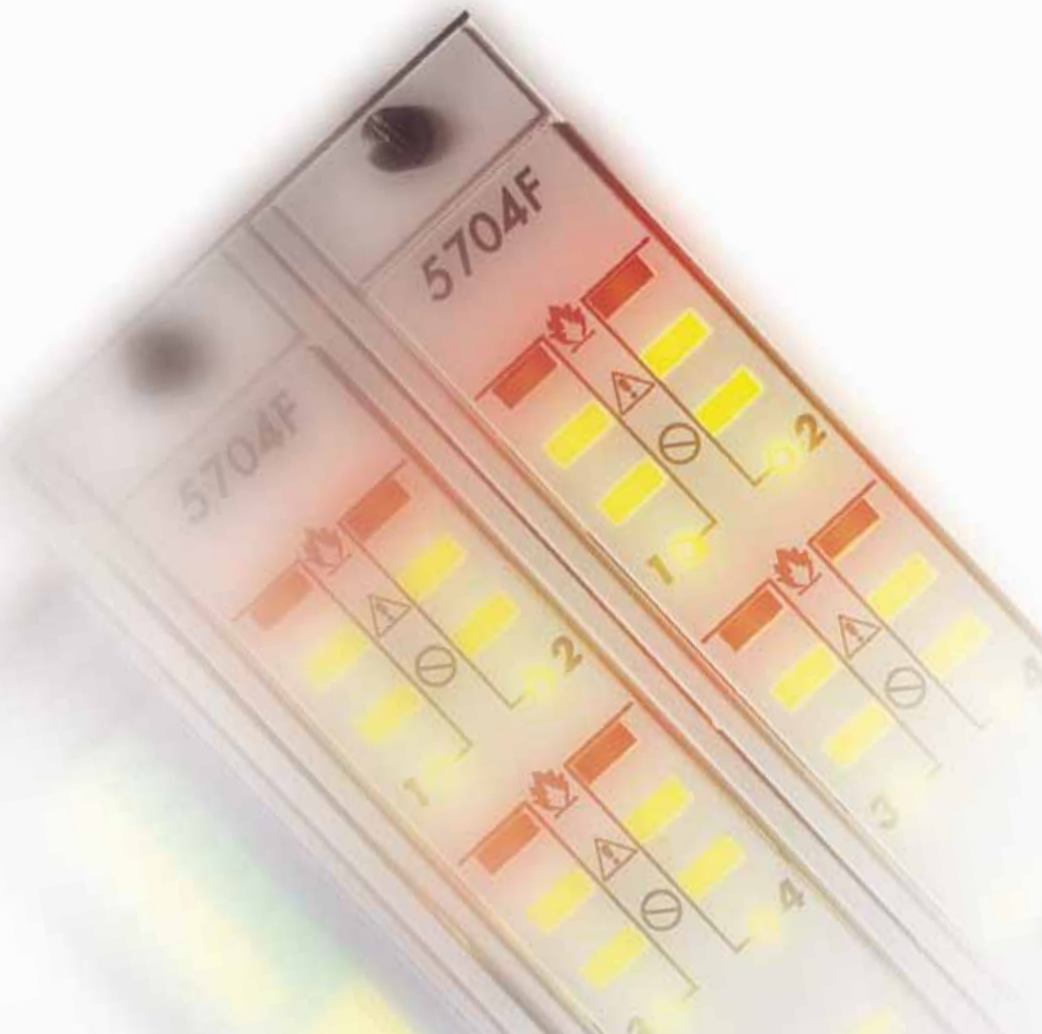
## System 57 - the heart of fire and gas control

For almost half a century, our gas detection systems have provided the safety needed to protect plant and personnel from flammable and toxic gas hazards. Across the globe, they are installed in a wide variety of applications ranging from simple small scale systems to some of the World's largest fully integrated fire and gas detection systems.

To fulfil the unique requirements of each individual application requires a control system with unlimited flexibility. The modular design approach employed by the System 57 enables you to define, in detail, the unique control and alarm parameters to fulfil your requirement.

System 57 accepts inputs from flammable and toxic gas detectors, a large range of flame, smoke and heat detectors and manual call points. Available outputs include relays, analogue signals and industry standard digital protocols. Packaged in either wall mounting cabinets or panel mounting racks, System 57 can be used stand alone or integrated into the heart of a fire and gas system.

Whatever the application, large or small, our sales engineers and customer service representatives are available to discuss your requirements and recommend the control system that's best for you.



# Technical Summary

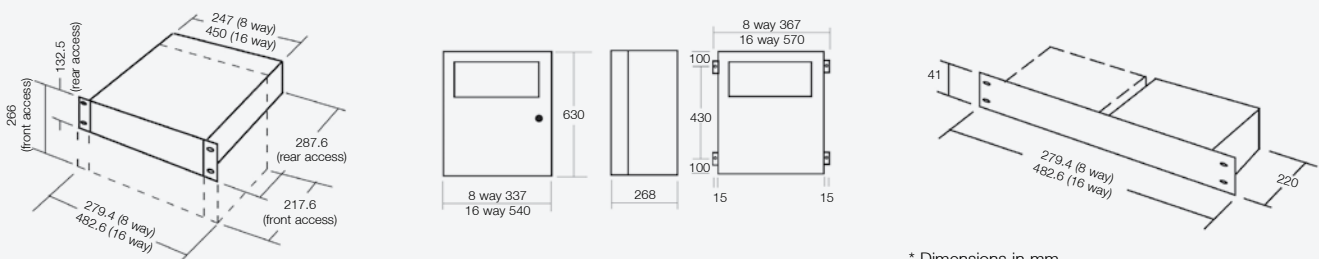


5704F Fire Card Specification	5704 Fire Card	5704 Fire Status Panel
<b>Audible Sounder</b>	-	60dB at 1m
<b>Remote Facilities</b>	Accept, reset and silence	-
<b>Supply Voltage</b>	21V to 32VDC	18V to 32VDC
<b>Power Consumption</b>	2W	0.75W
<b>Operating Temperature</b>	-5°C to +55°C	
<b>Storage Temperature</b>	-25°C to +55°C	
<b>Operating Humidity</b>	20-90% RH (non condensing)	
<b>Dimensions</b>	3U high x 25mm wide	
<b>Weight</b>	175g	75g
<b>Approvals</b>	EN50270	

Cabinets, Racks and Power Supplies Specification	
<b>Cabinets</b>	
<b>Material</b>	Mild Steel
<b>Colour</b>	RAL-7015 – slate grey
<b>Hinge</b>	Left hand side
<b>Lock</b>	Right hand side
<b>Rack Mounting</b>	8 way: half 19" profile 16 way: 19" universal profile
<b>Pre-formed Gland Entries</b>	8 way: 2 x M25; 2 x PG16; 8 x M20; 6 x PG11 16 way: 3 x M25; 4 x PG16; 16 x M20; 10 x PG11
<b>Environmental Protection</b>	IP54
<b>Mounting Plate</b>	8 way: 120mm (H) x 220mm (W) 16 way: 120mm (H) x 440mm (W)
<b>Earthing Points</b>	Main Cabinet: M6. Door: M5
<b>Mounting Bracket Holes</b>	10mm diameter
<b>Weight</b>	8 way: 10.0kg 16 way: 13.5kg
<b>Racks</b>	
<b>Material</b>	Galvanised Steel
<b>Colour (Mounting Brackets)</b>	RAL-7015 - slate grey
<b>Mounting</b>	8 way: half 19" profile 16 way: 19" universal profile
<b>Earthing Point</b>	M5 stud
<b>Mounting Bracket Holes</b>	6mm diameter
<b>Supply Voltage</b>	18 to 32VDC
<b>Power Consumption</b>	1.5W
<b>Operating Temperature</b>	-5°C to +55°C
<b>Storage Temperature</b>	-25°C to +55°C
<b>Operating Humidity</b>	0-90% RH (non-condensing)

Cabinets, Racks and Power Supplies Specification cont.	
<b>Racks cont.</b>	
<b>Weight</b>	8 way front access 3.9kg (inc. Engineering Card & DC input Card) 16 way front access 5.8kg 8 way rear access 2.8kg 16 way rear access 4.1kg
<b>Approvals</b>	EN50270
<b>Power Supplies</b>	
<b>Supply Voltage</b>	AC: 85V to 264V; 47Hz to 440Hz DC: 110V to 340V
<b>Inrush Current</b>	Typically 30A at 230V input for 50W full load
<b>Output Voltage</b>	24VDC ± 10%
<b>Power Supply Rating</b>	8-way: 50W upgradeable to 100W 16-way: 50W upgradeable to 200W
<b>Overload Protection</b>	Operates at more than 105% of rating Recovery automatic
<b>Overvoltage Protection</b>	Operates at more than 115% of rating
<b>Mounting</b>	8 way: half 19" profile 16 way: 19" universal profile
<b>Earthing Point</b>	M5 stud
<b>Mounting Bracket Holes</b>	6mm diameter
<b>Operating Temperature</b>	-25°C to +55°C
<b>Operating Humidity</b>	20-90% RH (non-condensing)
<b>Weight</b>	8 way, 50W 0.9kg 16 way, 50W 0.96kg Subunit: 815g 50W module 230g
<b>Colour</b>	Front: RAL-7015- slate grey Body: Black anodise
<b>Approvals</b>	EN50270

## Cabinets, Racks and Power Supplies Dimension Drawings



# System 57



## 1 5701 Gas Control Card

This provides a single channel control function within a 1" wide package.

- Independent single channel operation
- Plug-in input and output options

## 2 5704 Gas Control Card

This provides four channels of control function within a 1" wide package.

- 4-channel operation
- Choice of output options
- Channel displayed: automatic sequencing, highest reading, combination or manual channel display selection options

## 3 5704F Fire Control Card

This provides four zones of fire control within a 1" wide package.

- 4 zone fire card
- 2 line monitored outputs
- Up to 15 cards in a 19" rack

## 4 5704FS Fire Status Panel

Each rack that contains a 5704F fire card has one 5704FS fire status panel fitted.

The 5704FS fire status panel provides common display and alarm indication for all of the fire cards in a rack as well as a local audible sounder. It also provides common push buttons for executing specific fire card related functions.

- Common fire control card push button functions
- Common display and alarm indications
- Local audible sounder

## 5 Master Alarm Update Panel

The master alarm update facility can be enhanced by adding the optional master alarm update panel.

- 1" wide panel
- Audible and visual alarm
- Reset and accept push button
- Provides update facilities without the need for external wiring

## 6 Power Supply Units

The power supply units are rack mounted to complement the System 57 systems

- 1U high, 19" & ½ 19" units
- Upgradeable to 200W in 50W blocks
- Auto sensing input voltage: AC or DC
- Regulated DC output
- Over voltage and overload protected

## 7 Engineering Card

The System 57 engineering card provides full maintenance and set up facilities for each channel card. The front panel has a series of tactile feedback push buttons that allows checks of the alarm levels and performance to be carried out for each channel. A real-time 'on board' clock provides calibration history and calibration overdue reminder functions.

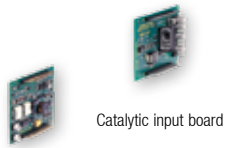
- Security protected
- User friendly operation
- Calibration facility
- Command accept / abort facility
- Channel card set up capability



# System 57



Optional analogue output module



Analogue input board

Catalytic input board



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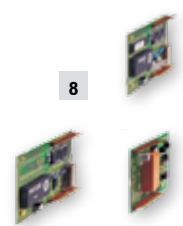
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Blank panel



8

# System 57



## 8 Engineering Card Modules

A number of plug-in options for the extended system capabilities:

### 8a Serial Communications Module

The serial communications module provides a gateway between the System 57 rack and a remote device (DCS, PLC or SCADA package) to allow the continuous monitoring of each channel's operation and condition as well as allowing remote configuration of the system operation.

- Industry standard MODBUS RTU protocol
- RS485 / 422 / 232 standard
- Bi-directional
- Electrically isolated communications bus
- SCADA graphics package available

### 8b RS232 Printer Driver Module

The printer driver module provides a serial output in the event of a gas alarm, fault or user intervention.

- RS232 ASCII event data
- Selectable print criteria
- Time and date stamping
- Electrically isolated communications bus

### 8c Master Alarm Update Module

The alarm update module provides a common alarm indication with new alarm event update.

- 2 Outputs: 1 relay, 1 Darlington
- Selectable operation: pulsed, continuous
- Alarm accept input
- Common alarm reset input
- Complies with ISA 'M', DIN 19 235
- Optional master alarm update panel

### 9 Interface Cards

There are 9 versions of interface card available (5 for 5701 Gas, 2 for 5704 Gas and 2 for 5704 Fire Control Cards). The interface cards provide the link between the various fire or gas detectors and the control cards.

- Sensor interface
- Flexible relay options
- Individual control card power option
- High integrity operation option
- Accepts  $\leq 2.5\text{mm}$  / 14 gauge cable

## 10 Rack Assemblies

System 57 racking units provide mounting options for the System 57 Control Cards and Interface Cards. The racks are available complete with a DC input card and an engineering card.

- 3U high format
- Front and rear wiring options
- Half and full 19" versions
- Up to 64 channels of gas detection or 60 channels of fire detection in a single rack, or a combination of both.

### Cabinet Assemblies

The System 57 cabinets provide a convenient and compact mounting of the rack assemblies and PSUs

- Wall mounting half and full 19" versions
- IP54/Nema 12 cabinet protection rating
- Preformed knock-out gland entries
- Accessory mounting plate

### DC Input Card

The DC input card is connected directly to the engineering card and provides the connection point for power supplied to the whole rack.

The field wiring from the engineering card modules is also on this card.

- Common power supply wiring point
- Reverse polarity and short circuit protection
- Multi-supply input capability

# Technical Summary



Interface Card Selection Table	5701 Gas Interface Card Type					5704 Gas Interface Card Type		5704F Fire Interface Card Type	
	Field Interface	Double SPCO	Triple SPCO	Triple DPCO	High Integrity	Quad Relay	Relay Interface	Hex Relay	Relay Interface
Sensor Connection	•	•	•	•	•	•	•	•	•
No relays	•								
3 SPCO Relays		•							
5 SPCO Relays			•						
8 Changeover Relays				•					
8 Changeover Relays*					•				
4 SPCO Relays**						•			
12 SPCO and 4 SPST Relays**							•		•
6 SPCO Relays**								•	
24V in	•	•	•	•	•	•	•	•	•
24V out	•	•	•	•	•				
Analogue ***	•	•	•	•	•	•	•		
Remote Inhibit	•	•	•	•	•	•	•		
Remote Reset	•	•	•	•	•	•	•		
Remote Accept, Reset, Silence								•	•
2 x line monitored outputs								•	•

\* 8 relays (7 fully configurable, 1 for fault alarm). Configurable master alarm functions or a mixture of master and individual alarms. The relay states are monitored by the control card to ensure correct operation of the relays. \*\* Fully configurable for individual or master alarms and relay operation. \*\*\* With optional analogue output module fitted to control card.

5704F Indications		Indication	
Function	Colour	Continuous	Flashing
<b>5704 Fire Card</b>			
Fire	Red	Fire condition on zone (accepted)	New fire condition (not accepted)
Fault	Yellow	Fault condition on zone (accepted)	New fault condition (not accepted)
Inhibit	Yellow	Zone inhibited	-
Output Channel	Yellow	Output channel in fault condition (accepted)	New output fault condition (not accepted)
Selected Zone	Yellow	Active when zone has been accepted	-
Card Fault	Yellow	Card fault (accepted)	Card fault (not accepted)
Power	Green	Healthy	-
<b>5704 Fire Status Panel</b>			
Master Fire	Red	Fire condition on at least one zone (accepted)	New fire condition (not accepted)
Master Fault	Yellow	Fault condition on at least one zone (accepted)	New fault condition (not accepted)
Master Inhibit	Yellow	At least one zone inhibited	-
Master Silence	Yellow	At least one output silenced	-
Master Walk Test	Yellow	At least one zone in walk test mode	-
Earth Fault	Yellow	Earth fault (accepted)	New earth fault (not accepted)
Power	Green	Healthy	-
<b>Audible Mode</b>		<b>Indication</b>	
Continuous		New fire condition (not accepted)	
1s ON, 1s OFF		New fault condition (not accepted)	
1s ON every 10s		Fire signal on at least one zone (accepted)	
1s ON every 30s		Fault signal on at least one zone (accepted)	

# Technical Summary



5701/4 Gas Card Specification		
Control Card	5701 Control Card	5704 Control Card
<b>Back lit LCD</b>	Bar graph + peak reading, digital, alphanumeric	Bar graph + peak reading, digital, alphanumeric
<b>Front Panel Facilities</b>	Red LED: A1, A2, A3 Yellow LED: fault, inhibit Green LED: power Push button: alarm reset / card select	CH1-4 LEDs: A1, A2, A3, fault, inhibit per channel Attn LED: card fault, update alarm, alarm test Green LED: power Push button: alarm reset / card select
<b>Remote Facilities</b>	Inhibit and remote alarm reset	Inhibit and remote alarm reset
<b>Supply Voltage</b>	18V to 32VDC	18V to 32VDC
<b>Power Consumption</b>	Catalytic: 3.75W 4-20mA: 3.25W	Catalytic: 12.8W 4-20mA: 8.4W
<b>Display / Alarm Point</b>	Linearity: 1% FSD Repeatability: 1% FSD	Linearity: 2% FSD Repeatability: 2% FSD
<b>Electronic Drift</b>	Less than 2% / 6 months	Less than 3% / 6 months
<b>Operating Temperature</b>	-5°C to +55°C	-5°C to +55°C
<b>Storage Temperature</b>	-25°C to +55°C	-25°C to +55°C
<b>Operating Humidity</b>	20-90% RH (non condensing)	20-90% RH (non condensing)
<b>Dimensions</b>	3U high x 25mm wide	3U high x 25mm wide
<b>Weight</b>	165g	165g
<b>Approvals</b>	EN50270	EN50270
Catalytic Bridge Input		
<b>Drive Method</b>	Constant current	Constant current
<b>Current Range</b>	70mA to 283mA	90mA to 315mA
<b>Full Scale Range</b>	15mV to 600mV	15mV to 300mV
<b>Maximum Line Resistance</b>	40 ohms at 250mA (including sensor)	40 ohms at 200mA (including sensor)
4-20mA Input		
<b>Loop Powered Voltage</b>	23V ± 5% isolated	24V ± 5% isolated
<b>Sensor Configuration</b>	current sink or source	current source
<b>Signal Measurement Range</b>	0 to 25mA	0 to 25mA
<b>Maximum Loop Resistance</b>	500 ohms (including sensor)	500 ohms (including sensor)
Analogue Output Option		
<b>Measurement Signal Range</b>	0 to 20mA or 4-20mA	0 to 20mA or 4-20mA
<b>Linearity From Input</b>	Better than 2% FSD	Better than 2% FSD
<b>Repeatability From Input</b>	Better than 1% FSD	Better than 1% FSD
<b>Configuration</b>	Isolated current sink or source (with external supply)	Isolated per card for current sink or source (with external supply)

Interface Card Specification	5701 Interface Relay Cards	5704 Interface Relay Cards	5704F Interface Relay Cards
<b>Relay Contacts</b>	5A at 250VAC / 32VDC (non-inductive)		
<b>Relay Operation</b>	selectable- latching/non-latching, normally energized/ de-energized		
<b>Power Consumption</b>	Field Interface card 0.0W	Quad Relay Interface 1.7W	Hex Relay Interface 2W
	Double SPCO card 0.8W	Relay Interface Assembly 6.5W	Relay Interface Assembly 6.5W
	Triple SPCO card 1.0W		
	Triple DPCO card 1.6W		
	High Integrity card 1.7W		
<b>Terminals</b>	accepts up to 2.5mm <sup>2</sup> (14AWG) cable		
<b>Operating Temperature</b>	-5°C to +55°C		
<b>Storage Temperature</b>	-25°C to +55°C		
<b>Operating Humidity</b>	20-99% RH (non condensing)		
<b>Weight</b>	Field Interface card 95g	Quad Relay Interface 230g	Hex Relay Interface 250g
	Double SPCO card 155g	Relay Interface Assembly 500g	Relay Interface Assembly 500g
	Triple SPCO card 205g		
	Triple DPCO card 245g		
	High Integrity card 255g		
<b>Approvals</b>	EN50270		



# System 57



## Control Cards

The System 57 offers unrivalled flexibility with both fire and gas control cards available in the same rack.

### Gas Control Cards

The System 57 gas control cards provide display and alarm facilities for the full range of our gas detectors.

Their concise, back lit, multi-part LCD displays the gas reading and status in both analogue bar graph and digital numeric forms. In addition, there is an alpha numeric message section to give sensor (and engineering function) status.

There is a choice of either the single channel 5701 or the four channel 5704 gas control cards. Each card has two input options; one is for catalytic bridge type while the other is for 4-20mA sensors or transmitters.

- 3 levels of alarm
- Options of individual, zoned, voted, master, time delayed, update and rate of rise alarm facilities
- Clear 4 part LCD display
- Peak reading facility
- Sensor performance monitoring

### Fire Control Cards

The 5704F fire control cards provide display and alarm facilities for a wide variety of fire detection products and provides up to four fire zone inputs compatible with most flame, smoke and heat detectors and manual call points. The status of each fire zone is individually displayed by high intensity LEDs.

In addition, each card has two line monitored alarm output circuits.

Both fire and gas control cards can be freely mixed in a rack.

- High intensity LED indications
- Up to 60 fire zones per 19" rack
- Configurable for use with a wide range of fire detection products



Single Channel Gas Control Card



Four Channel Gas Control Card



Four Zone Fire Card



Fire Status Panel



Engineering Card

### Oil and Gas

- Petrochemical
- Onshore
- Offshore

### Industrial

- Chemical
- Semi-conductor
- Water treatment
- Food

### Commercial

- Building services
- Car parks
- Boiler houses