

An introduction to.....



Sigma XT+

Sigma XT+ Overview

The Sigma XT+ 21000 series are the latest additions to the Sigma family of control equipment from Kentec Electronics Limited.

The Sigma XT+ range combines feature rich, Sigma CP conventional fire detection from two to eight zones with highly configurable extinguishing control modules to provide an integrated control solution for extinguishing systems with up to four areas.

The EN54-2/4 compliant fire detection section connects to the EN12094-1 compliant extinguishant control modules via a serial link which allows secure, bi-directional transfer of data between the two.

Sigma XT+ modules may be mounted remotely in separate enclosures and connected to Sigma CP panels via this serial interface to provide central fire detection and control with distributed extinguishing systems.

Sigma XT+ modules may also be mounted separately from fire detection and control equipment and activated by addressable output modules or volt free contacts from other systems via two monitored activation inputs.

The fire detection part of the system has all of the benefits of the popular Sigma CP range with its many, easily accessed configuration options and compatibility with a wide range of detection devices.

The Sigma XT+ extinguishing modules set a new benchmark for extinguishing control panels. Each module is controlled by its own powerful microcontroller bringing unparalleled intelligence and versatility to multi area extinguishing systems for the first time.

Sigma XT+ modules have inputs and outputs to cover all system requirements including individual, monitored first and second stage alarms and dual extinguishing outputs. The extinguishing outputs can be configured to operate together or as main and reserve for essential back up following a discharge. They can also be individually calibrated to provide true open and short circuit monitoring through pyrotechnic actuators or a wide range of solenoids.

Connectivity

In addition to Sigma XT+ extinguishing modules, up to seven Sigma CP ancillary boards providing zonal and common relay outputs and seven Sigma CP sounder boards, each providing an additional eight, monitored sounder circuits can be connected to the Sigma CP RS485 serial bus at up to 1200 metres from the control equipment.

Also, up to seven Sigma XT ancillary boards and seven Sigma Si status units can be connected to each Sigma XT+ module to provide remote status indication and control and additional outputs as required at up to 1200 metres from the control equipment.

This flexibility ensures that any system configuration can be realised with a minimum of cabling.

Ease of Installation

The simple construction of Sigma XT+ control panels utilises removable bridge plates for mounting all electronic assemblies. These bridge plates bring the terminals to the front of the enclosure providing easy access to all wiring terminals.

The outer door may be removed to further improve access by withdrawing the easily accessible hinge pins.

This ensures clear access for wiring and protection of the electronic assemblies during installation.

Multiple knockouts in the top, bottom and back and sides of the enclosures provide ample options for cable entries.



Weatherproof (IP65)
10 Lamp status unit
with Mode Select &
Manual Release
W911113W8



Sigma Si Status Units

To compliment the Sigma XT+ control panel there is a range of system status units.
Up to seven status units can be connected to each Sigma XT+ and require just two cores for data and two cores for power.
Once connected, status units are supervised and the Sigma XT+ control panel will indicate a fault condition should any unit become disconnected.

Status units have either 6 indicators or 10 LED indicators (with common fault and 3 fire zone indications). Versions are also available with mode select keyswitch only or mode select keyswitch and manual release control. All status units have monitored inputs for the remote connection of Automatic/Manual mode and Hold switches, there is also a seven segment LED display which shows the time remaining until discharge occurs.

All status units are housed in an attractive steel enclosure to match the control panel and measure just 186 x 132 x 50mm.

Status units are available in standard flush or surface mounting versions or weatherproof (IP65) surface versions of the following units:



6 Lamp status unit
K91100M8



6 Lamp status unit
with Mode Select
K91110M8



6 Lamp status unit
with Mode Select &
Manual Release
K911110M8



10 Lamp status unit
with Mode Select &
Manual Release
K911113M8

Sigma XT Ancillary Board - S588

The Sigma XT ancillary board provides a means to extend signals from the extinguishing system for additional plant control or other signaling applications such as interfaces to BMS systems or house fire alarm systems.

The Sigma XT+ is equipped with a selection of volt free contacts which are often adequate for this purpose however, for applications that require more outputs from the system, the Sigma XT ancillary board provides a simple solution. Up to seven ancillary boards may be connected to the status unit serial bus to provide distributed control and signalling at multiple locations if required.



Sigma CP Ancillary Board - S580

The versatility of Sigma XT+ panels can be further enhanced by fitting Sigma CP ancillary boards.

The S580 ancillary board connects to the RS485 serial bus of the detection part of the control panel and provides the ability to extend fire, fault and coincidence signals to remote locations up to 1200 metres from the control panel using only two wires (four if powered by the main panel).

Individual volt free changeover contacts are available for each zone, common fire, common fault and coincidence operation.

Up to seven ancillary boards can be connected to each control panel allowing differing zonal information and control to be distributed around a building using a simple serial data connection.



Sigma CP Sounder Board - S461

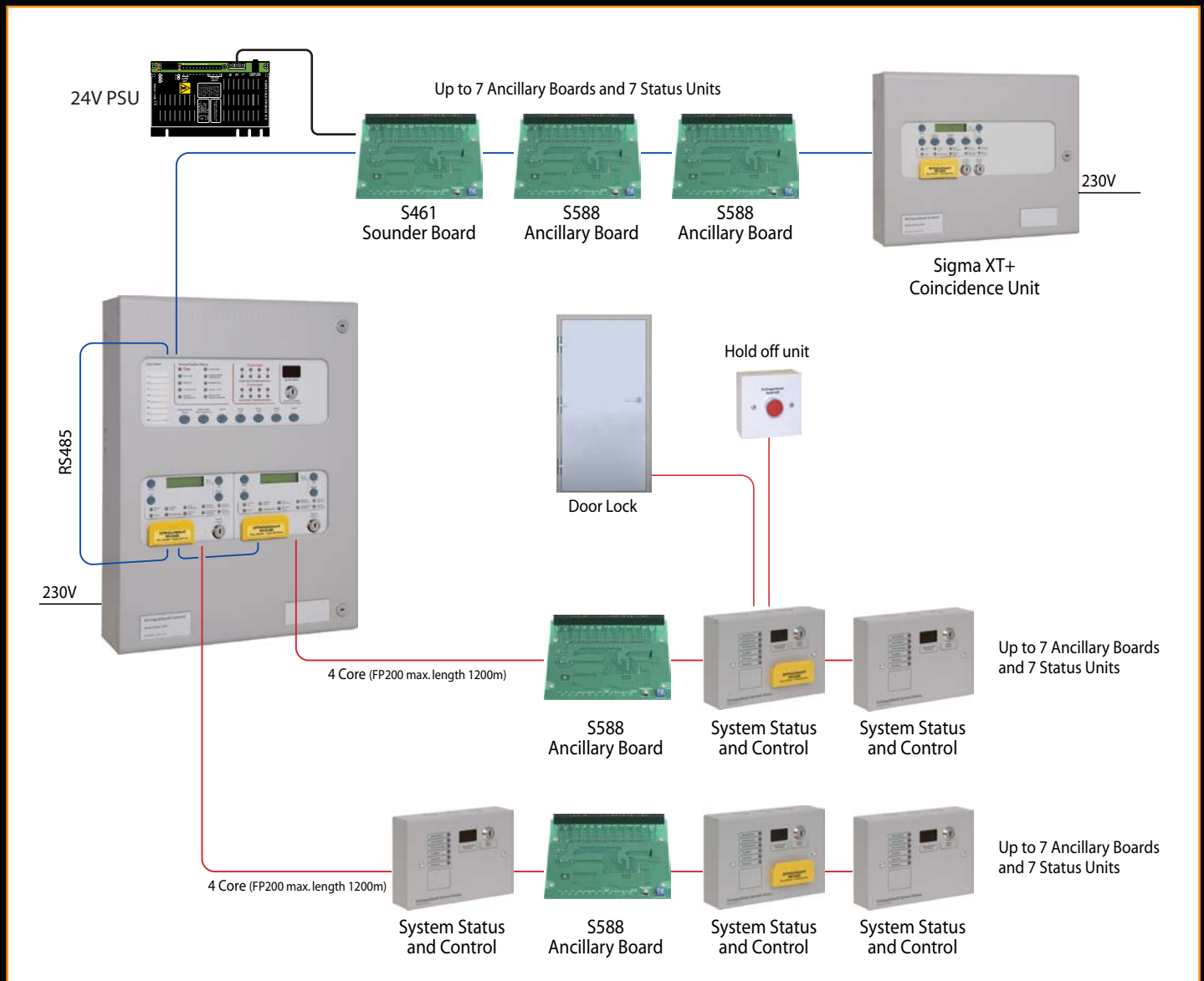
Additional sounder circuits can be added to Sigma XT+ panels via S461 Sounder boards.

The S461 sounder board connects to the RS485 serial bus of the detection part of the control panel and provides 8 fully monitored sounder outputs that can be configured for; common alarm, two-stage alarm, or zonal alarm.

Up to seven sounder boards may be connected to each control panel to provide zonal monitored outputs distributed throughout an installation.



Example System Schematic



The following matrix shows the features available on all Sigma XT+ extinguishing panels.

Feature	Comments
Display	2 x 16 character LDC (backlit)
Indicators	High brightness LED
Controls	Tactile rubber buttons
Number of extinguishing areas	1 to 4
Number of detection zones	2, 4 or 8
Common sounder circuits	2 on Sigma CP part
Common alarm relay	On Sigma CP part (30V 1 A)
Common fire relay	On Sigma CP part (30V 1 A)
Common fault relay	On Sigma CP part (30V 1 A)
1st stage sounder circuits	1 per Sigma XT+ module
2nd stage sounder circuits	1 per Sigma XT+ module
Extinguishing outputs	2 per Sigma XT+ module - selectable as common or main/reserve (monitoring calibrated by microcontroller)
1st stage relay	1 per Sigma XT+ module (30V 1 A)
2nd stage relay	1 per Sigma XT+ module (30V 1 A)
Released relay	1 per Sigma XT+ module (30V 1 A)
Fault relay	1 per Sigma XT+ module (30V 1 A)
Aborted relay	1 per Sigma XT+ module (30V 1 A)
Extract relay	1 per Sigma XT+ module (30V 1 A)
Manual release (front panel)	Manual release (front panel) Lift flap pushbutton
Auto/Man Mode select (front panel)	Auto/Man Mode select (front panel) Non-retained keyswitch
Activation inputs	Activation inputs Two monitored inputs - Allow Sigma XT+ modules to be activated by addressable modules or volt free contacts.
Manual release input	Fully monitored
Hold input	Fully monitored
Abort input	Fully monitored
Auto/Man mode select input	Fully monitored
Released pressure switch input	Fully monitored
Low pressure switch input	Fully monitored (can be inverted for NC contacts)
Aux 24V output	1 per Sigma XT+ module. Fused at 500 milliamps
Master serial bus	RS485
Status unit serial bus	RS485 - 1 per Sigma XT+ module
Status unit power output	Fused at 500 milliamps - 1 per Sigma XT+ module
Main/ Reserve selection	Via front panel
Extract output selection	Via front panel
Standards	EN54-2 and EN54-4 for Sigma CP part, EN12094-1 for Sigma XT+ modules

Sigma XT+ technical specifications chart.

Item	Electrical Rating	Comment
Size - Single or two area models	385w x 520h x 110d	
Size - Three and four area models	385w x 700h x 110d	
Mains supply	230V AC, 50Hz +10% - 15% (100 Watts maximum)	
Mains supply fuse	1.6 Amp (F1.6A L250V)	Replace only with similar type
Power supply rating (K21021, K21041, K21042, K21081, K21082)	3 Amps total including battery charge 28V +/- 2V	
Power supply rating (K21083, K21084)	4 Amps including battery charge 28V +/- 2V	
Maximum ripple current	200 millivolts	
Battery type (Yuasa NP)	Two 12 Volt sealed lead acid in series -	
Battery charge voltage	27.6VDC nominal (temperature compensated)	See chart below
Battery charge current	0.7A maximum	
Battery fuse	20mm, 3.15A glass	Replace only with the same type
Current draw in mains fail condition	54 milliamps per module	
Max. current draw from batteries	3A (K21021, K21041, K21042, K21081, K21082) 4A (K21083, K21084)	With main power source disconnected
Sigma XT+ module Aux 24V output	Fused at 500mA with electronic fuse - 1 per extinguishant area	200 milliamp maximum continuous load
Sigma CP Aux 24V output	Fused at 2.5A - not available to user	
1st and 2nd stage Sounder outputs	21 to 28V DC Fused at 1A with electronic fuse	1.0 Amp total load over all circuits
Fault relay contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
Fire relay contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
Local fire relay contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
First stage contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
Second stage contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
Extract contact rating	5 to 30VDC 1A Amp maximum for each	Maximum ratings not to be exceeded
Zone quiescent current	0mA minimum, 2mA maximum	See tables 2 and 3 for detector types
Terminal capacity	0.5mm ² to 2.5mm ² solid or stranded wire	
Number of detectors per zone	Dependent on type - typically 20	
Number of sounders per circuit	Dependent on type and current consumption - typically 20+	
Detection circuit end of line	6K8 +/- 5% ½ Watt resistor	Supplied in terminals
Monitored input end of line	6K8 +/- 5% ½ Watt resistor	Supplied in terminals
Sounder circuit end of line	10K +/- 5% ¼ Watt resistor	Supplied in terminals
Extinguishant output end of line	1N4004 Diode	Supplied in terminals
No. of detection circuits	Two to eight. 21 to 28V DC	Dependent on model
No. of sounder circuits	Dependent on model 21 to 28V DC	2 x on detection section -1st stage and 1 x 2nd stage per exting area.
Extinguishant release output	21 to 28V DC. Fused at 1 Amp	1 Amp maximum load -for 5 minutes
Extinguishant release delay	Adjustable 0 to 60 seconds (+/- 10%)	5 second steps
Extinguishant release duration	Adjustable 60 to 300 seconds	5 second steps
SIL, AL, FLT, RST inputs	Switched -ve, min resistance 0 ohms, max resistance 100 Ohms	Only to be used with Aux ROV terminal
Zone normal threshold (Allowable EOL)	10K ohm to 2K ohm	Use 6K8 end of line resistor
Detector alarm threshold	1K ohms to 390 ohms	Nominal trigger resistance 470 ohms
Call point alarm threshold	370 ohms to 150 ohms	Nominal trigger resistance 270 ohms
Short circuit threshold	130 ohms to 0 ohms	
Head removal condition	15.5 to 17.5 volts	2-wire detector base or schottky diode base
Cabling	FP200 or equivalent (max capacitance 1uF max inductance 1 mH)	Metal cable glands must be used
Monitored inputs normal threshold (Allowable EOL)	10K ohm to 2K ohm	
Monitored inputs alarm threshold	2K ohms to 150 ohms +/- 5%	
Monitored inputs Short circuit threshold	140 ohms to 0 ohms +/- 5%	
Status unit/Ancillary board connection	Two wire RS485 connection (EIA-485 specification)	Max. of 7 units per area- RS485 data cable
Status unit power output	21 to 28V DC. Fused at 500mA with electronic fuse	300 milliamp max. load

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