

INSTALLATION INSTRUCTIONS

The VIGILANT T-Gen2 is a self-contained Grade 2 Emergency Warning System (EWS) with 100V speaker line supervision and digitised speech messages. It complies with AS 4428.16.

It is available as a self-contained EWS, complete with PSU, User Interface and emergency PA microphone for up to 4 zones, expandable to 20 zones.

FP1129 **15U Grade 2 EWS:** A 4 zone emergency warning system including one T-Gen 120, 14A PSU, 4 zone Grade 2 User Interface and one 100V Switching Module. Additional 100V Switching Modules (FP1118) or Slave T-Gen2 modules (FP1115 or FP1116) can be added to provide further zone 100V outputs. A 16 zone expansion User Interface 3U door can be added (FP1126), plus an additional 8 zones of display/control (FP1128) to provide the full 20 zones for manual control/ indication. A high level interface to Vigilant MX1, MX4428, F3200 or Simplex 4100ESi FIPs can be added via a FP1143 kit. A suitable add-on expansion cabinet is FP1130.

FP1130 **15U EWS Expansion Cabinet:** A 15U blank-door cabinet with the same gearplate as FP1129, but fitted with only a 14A PSU and 230V mains GPO. Up to 3 x T-Gen 60 or T-Gen 120, 10 x 100V Splitter or Switching Modules, or an additional PSU can be added to provide additional zone or power outputs. It needs to be mounted adjacent to the FP1129 cabinet.

Optional modules that can be fitted into these cabinets include:

FP1115 **T-Gen 60:** A 60W T-Gen2 can be fitted to expand the power output or provide a specific zone output.

FP1116 **T-Gen 120:** A 120W T-Gen2 can be fitted to provide to expand the power output or provide a specific zone output.

FP1117 **100V Switching Module:** This splits the T-Gen2's 100V output into 4 short-circuit isolated outputs that can be used to provide 4 zone outputs.

FP1118 **100V Splitter Module:** This splits the T-Gen2's 100V output into 4 short-circuit isolated outputs. No control of the outputs is possible, so all outputs belong to the same zone.

FP1126 **3U Door with 8 Zones Control/LEDs:** A 3U door fitted with 8 zones of LED indication and manual controls, able to be expanded to 16 zones with an FP1128.

FP1128 **8 Zone Control/LED Expansion:** A PCB module able to be fitted to an FP1126 8 zone door to expand the capacity to 20 zones total.

FP1143 **T-Gen2 High Level Interface Module:** This module is supplied on an MX loop card bracket and provides a high level interface connection between the RZDU output of Vigilant MX1, MX4428 or F3200 or the Simplex 4100ESi internal 4100 Comms and the T-Gen2. It can be mounted in the fire panel or in the EWS. It connects between the fire panel and T-Gen2 to provide a high level link allowing zone alarm information and fault status to be transferred. The fire panel and EWS cabinets must be installed side-by-side.

SU0360 **A 4488 4 Zone Paging Console:** A 4 zone paging console with microphone and chime option that can be used with the SU0361 A 4489 Audio Switcher to achieve 4 area paging from remote locations. Up to two paging consoles can be connected to the SU0361 Audio Switch.

SU0361 **A 4489 Audio Switcher:** Used with the A 4428 4 zone paging console to provide relay outputs. Able to be mounted inside the EWS cabinet.

These instructions (LT0687) cover the installation and configuration of the FP1129 EWS, the expansion cabinet FP1130, and general instructions for fitting the T-Gen2 and other modules. For detailed instructions for installation and operation of the included and optional modules refer to the following documents:

LT0667 LIT, T-GEN2 60/120 INSTALLATION & OPERATION MANUAL
LT0668 LIT, T-GEN 100V SWITCHING MODULE INSTALL INSTRUCTIONS
LT0671 LIT, T-GEN 100V SPLITTER MODULE INSTALL INSTRUCTIONS
LT0681 LIT, GRADE 2 USER INTERFACE INSTALLATION GUIDE
LT0682 LIT, GRADE 2 USER INTERFACE OPERATING INSTRUCTIONS
LT0683 LIT, GRADE 2 16 ZONE EXTENDER DOOR, INSTALL INSTRUCTIONS
LT0684 LIT, GRADE 2 8 ZONE EXPANSION BD INSTALL INSTRUCTIONS
LT0685 LIT, T-GEN2 14A PSE INSTALL INSTRUCTIONS
LT0691 LIT, T-GEN2 HLI BOARD INSTALL INSTRUCTIONS

CHECKING THE EWS

Before commencing installation, please ensure that the following items are present and undamaged:

FP1129, 15U Grade 2 EWS

- 1 x T-Gen 120W Board
- 1 x 14A PSU, Mains GPO and battery leads
- 1 x 100V Switching Module
- 1 x T-Gen2 Installation Instructions (LT0667).
- 1 x Grade 3 User Interface Operating Instructions (LT0682)
- 1 x EWS Installation Instructions (LT0687 – this document).
- 1 x LM0571 battery joining lead with 20A blade fuse
- 6 x HW0302, clip-in cable tie mount
- 1 x LT0686, factory completed EWS checklist
- 1 x LT0435, cabinet wall mounting template
- 1 x KT0575 kit of parts, including:
 - 1 x 3k3, 6 x 2k7, 1 x 15k, 3 x 27k, 1 x 56k, 2 x 100k, 1 x LB0648 Warning Label, 220mm length of 3mm heat shrink, 4 x M4 x 10 screws
- 1 x KT0576 kit of parts, including 4 x M5 x 12 screws, nuts, washers

FP1130, 15U Expansion Cabinet

- 1 x 14A PSE, mains GPO and battery leads
- 1 x EWS Installation Instructions (LT0687 – this document)
- 1 x LT0688 factory completed checklist
- 1 x LT0435 cabinet wall mounting template
- 12 x HW0302, Clip-In Cable Tie Mount
- 1 x LM0571, battery joining lead with 20A blade fuse

SYMBOLS USED ON PRODUCT LABELS

The following symbol used on product labels have these meanings:



WARNING: Electrical hazard contained inside. Extra care required if opening.

OPERATION

Operation of T-Gen2 EWS is controlled by the programmable configuration held within the master T-Gen2. The FP1129 T-Gen2 EWS is supplied with a 4 zone configuration (FP1129_Grade 2) to match the installed hardware. This includes 4 zones of 100V output via the 100V Switching Module, the User Interface and the 14A PSE. The T-Gen2 has the Alarm input enabled (all out evacuation), and the Audio 1 input is always on for background music. Alternative configurations can be prepared using the SmartConfig Windows program.

Further details for configuring/wiring the T-Gen2 itself are contained in LT0667, and in the SmartConfig on-line help file for preparing a custom configuration for the T-Gen2.

SmartConfig Lite (SF0323) and its User Manual (LT0345) can be downloaded from the Fireplace: <http://vigilant-fire.com.au>.

CONFIGURATION

1. T-Gen2 Configuration
Refer to the T-Gen2 Manual LT0667 for details. The Earth Mon Enable link Lk1 needs to be fitted to the Master T-Gen2 when used in the EWS panel. Any Slave T-Gen2 have Lk1 removed. Lk2 and Lk3 are not fitted.
2. 14A PSE
Address = 01. Link Lk1 on the PSE needs to be NOT fitted.
3. 100V Switching Module
Address = 01. Link 1 EOL not fitted.
4. User Interface
Address = 01. Links Lk1 and Lk2 are not fitted.

INSTALLATION AND WIRING

Cabinet Mounting

The 15U EWS cabinets are typically fixed to a wall with four 8mm screws or bolts (not included). The drilling details are shown in Figure 1.

The following conditions are required:

1. Dry Area, moderate ambient temperature, 45°C maximum.
2. Not exposed to direct sunlight.
3. Not subject to outdoor conditions without suitable protection.
4. The User Interface display should be at an average eye level and must not be higher than 1850mm or lower than 750mm above floor level.
5. Clear access and viewing for operators.
6. At least 1 metre free space should be provided in front of the panel for installation and maintenance.
7. Must not be installed in hazardous areas as defined in AS3000.
8. If recessed into a wall allow room for the door to open at least 145deg.

It should not be necessary to drill within the cabinet, but if drilling or filing is required, remove the circuit boards first.
Clean out all swarf before refitting the boards.

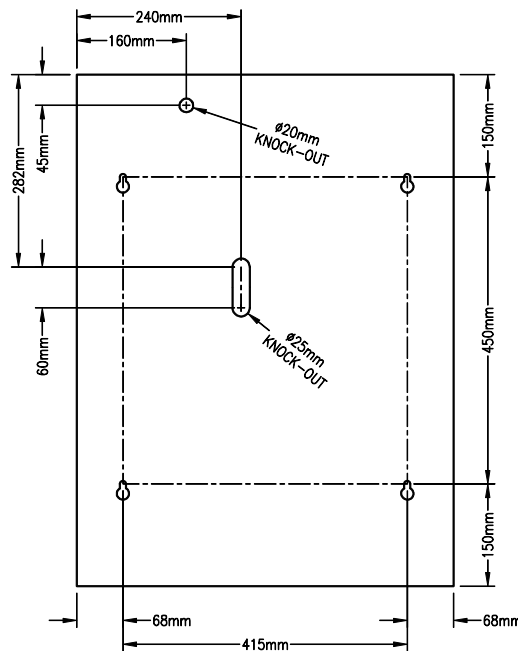


Figure 1 – 15U EWS Cabinet Mounting Details



This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

External Wiring

There are four Ø20mm and two Ø50mm knockouts provided in the top and bottom of the cabinet, as well as a Ø20mm knockout provided in the top for mains wiring entry (see Figure 1). There is also a Ø20mm and a Ø25mm x 60mm knockout in the cabinet rear wall for cabling. Other entry holes can be drilled as required.

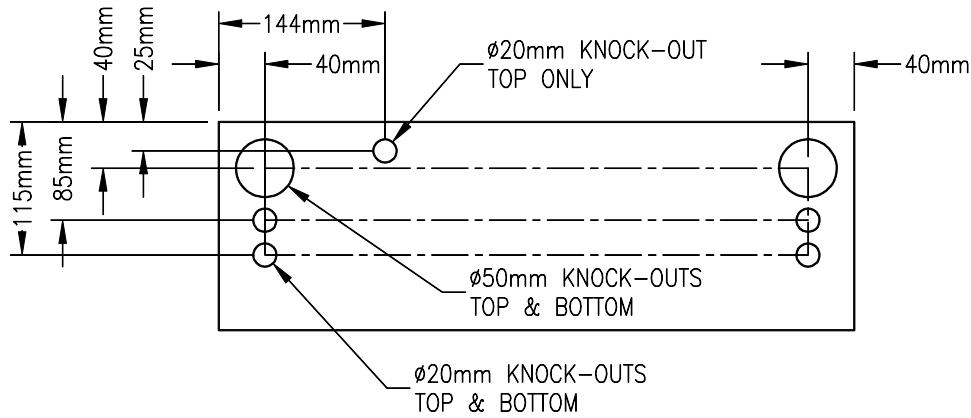


Figure 2 – 15U Cabinet Cable Knockouts

To prevent water entering the cabinets, seal unused knockouts and any top cable entries. Where possible, use bottom cable entry with cables going down 100 mm below the cabinet before rising.

Mains Wiring

The EWS shall be supplied with a dedicated mains feed direct from a main switchboard (refer AS/NZS 3000).
 A 10A circuit breaker is required for a system with up to three 14A PSE units.
 A 16A circuit breaker is required for a system with four or five 14A PSE units.
 A circuit breaker of more than 16A rating should not be used.

The General Purpose Outlet (GPO) must be wired by a suitably qualified electrician. It is recommended the mains lead enter the cabinet via the knockout behind the GPO.

IMPORTANT: The factory-fitted earth loom under the GPO mounting block must be wired to the earth terminal of the GPO in order to correctly earth the EWS cabinet.

Battery Wiring

The cabinet has space for two 12V batteries up to 40Ahr in rating.

The EWS panel is supplied with a red battery lead (LM0571) for joining the neg(-) terminal on the 1st battery to the pos(+) on the 2nd battery, and the screws, washers and nuts required for attaching the leads to the batteries. The leads are fitted with M6 lugs, but can be used with batteries that require M5 screws. The kit supplied with the EWS includes M5 and M6 screws, which are suitable for 17Ahr to 40Ahr batteries. The lead includes a 20A blade fuse.

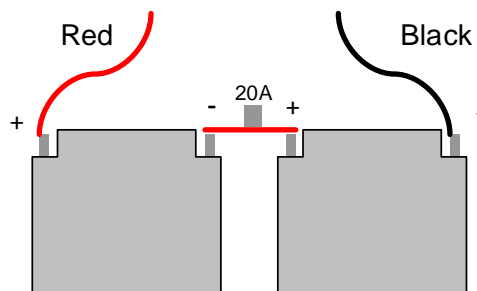


Figure 3 – Battery Wiring

Factory Wiring

The PSE 24V output is wired to the T-Gen2 +24V terminals.

By default, the T-Gen2 QBus output (J32) is wired to the 100V Switching Module J2, the 100V Switching Module J1 is wired to the PSE QBus connector J20, and the PSE J21 is wired to the User Interface QBus J6. However, this order can be changed as the QBus connections are interchangeable.

The PA microphone is wired to MIC Connector J9 on the T-Gen2.

The 100V output of the T-Gen2 (J5) is wired to the CHNL A Input (J6) of the 100V Switching Module.

T-Gen2 Field Wiring

Refer to the T-Gen2 Installation and Operating Instructions (LT0667) included with the EWS for details on connecting field wiring to the T-Gen2 and how to use the OLED display on the T-Gen2.

Expanding the EWS

The T-Gen2 EWS can be expanded up to a total of

- 10 x T-Gen2 (master and 9 slaves)
- 9 x 14A PSE
- One User Interface (20 zones max)
- 10 x 100V Switching Module
- Multiple 100V Splitter Modules per T-Gen2 output.

The gearplate of the FP1129 15U EWS and the FP1130 Expansion Cabinet supports a number of combinations of T-Gen2 parts, including:

- Up to 3 x T-Gen 60 or T-Gen 120 units
- Up to 2 x 14A power supplies
- Up to 10 x 100V Switching/Splitter Modules
- One HLI module (this can alternatively be mounted on the cabinet RHS wall).

Figure 4 shows the positioning of these modules on the gearplate (note many positions overlap).

Any FP1130 expansion cabinets need to be mounted immediately adjacent to the FP1129 EWS cabinet and the interconnection cabling run directly between them.

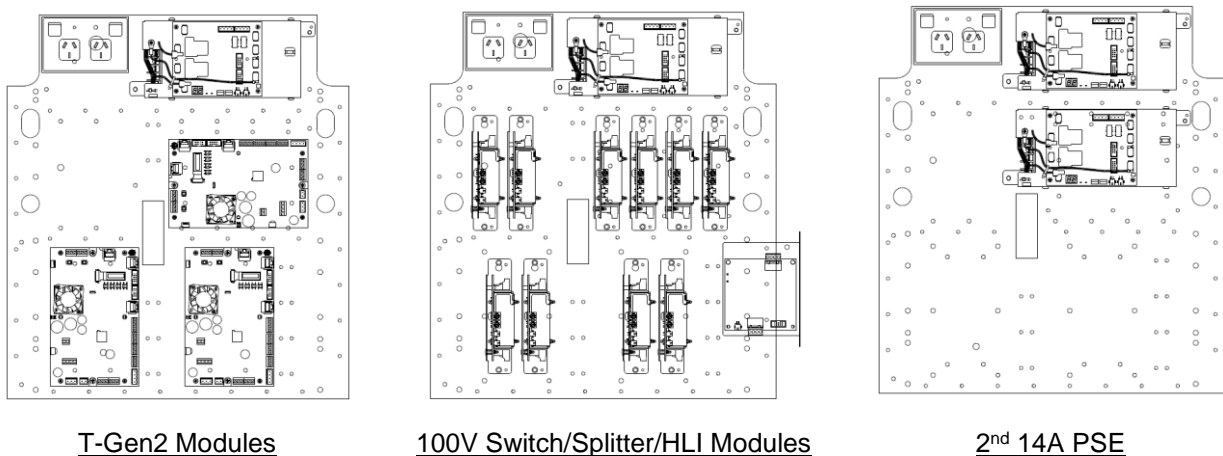


Figure 4 – 15U Gearplate Module Mounting Positions

100V Switching Module Field Wiring

Refer to the 100V Switching Module Installation Instructions (LT0668) for details on fitting and wiring this optional module.

100V Splitter Module Field Wiring

Refer to the 100V Splitter Module Installation Instructions (LT0671) for details on fitting and wiring this optional module.

HLI Field Wiring

Refer to the HLI Module Installation Instructions (LT0691) for details on fitting and wiring this optional module.

Expansion (Slave) T-Gen2

Fit the Slave T-Gen2 as per the instructions in LT0667. Connect 24V from the master T-Gen2 to the expansion T-Gen2 module, using red/black power wires.

Using the supplied RJ45 cable, connect the master T-Gen2 QBus OUT connector (J28) to the Slave T-Gen2 QBus IN connector (J27).

Configure the Slave T-Gen2 with the Slave configuration and address 1 (or as assigned) (refer to LT0667 for instructions). Re-configure the master T-Gen2 to include a Slave T-Gen at the assigned address using SmartConfig.

Up to 9 Slave T-Gen2 modules can be connected in total.

Additional 14A PSE Wiring

The details for fitting and wiring additional 14A PSE (FP1139) are contained in LT0685. Multiple PSE can share the same battery set (each PSE can be configured to enable its battery charger if needed) – inter-connect the Battery Test-terminals between these PSE to synchronise the battery testing. Each PSE needs to be assigned a different QBus slave address and configured in the Master T-Gen configuration using SmartConfig.

Paging

The EWS can be configured for area paging using FP1117 100V Switching Modules and an external paging console wired to digital inputs on the T-Gen2. Refer to the T-Gen2 Installation & Wiring Instructions LT0667 for details.

Expanding the User Interface

The 4 zones of User Interface can be expanded to 12 zones by adding the FP1126 3U 16 zone door (refer to the LT0683 instructions for removing the 3U blank and fitting the FP1126 module).

An additional 8 zones of User Interface can be added (to make 20 zones in total) by fitting the FP1128 8 Zone Extender kit to the unfilled area on the FP1126 door. Refer to the LT0684 instructions for fitting.

PSU Rating

The EWS is supplied with one 14A PSE. This limits the load that can be connected to the T-Gen2 units, as AS 4428.16 requires the PSU to be able to supply the full alarm load without any batteries connected.

Figure 5 shows the 100V load that can be connected to 1 and 2 x T-Gen120 units powered by the 14A PSE with varying strobe currents.

Basically the 14A PSE in the FP1129 EWS or FP1130 expansion cabinet can support:

- Up to 2 x T-Gen 120 @ 120W load each with no strobe current, decreasing to 160W in total as the strobe current increases to 4A.

This assumes both T-Gens are driving 100V loads simultaneously (e.g., via separate outputs or to separate zones). If 2 T-Gens are connected to the same 100V Switching Module (i.e., as A & B inputs), or 3 are connected to two 100V Switching Modules operating in parallel mode, then only one can be driving the 100V load at a time. Thus only one T-Gen2 needs to be counted in the number of T-Gen2 units for the PSU rating – as only one can be driving the loads at any time.

Additional 14A PSEs can be fitted to power other T-Gen2 units and higher loads.

From an internal temperature rise point of view the 15U cabinet can support one 14A PSU and 2 T-Gen120 units operating at full power over the full operating temperature range, when the AS 4428.16 signals are used. If the AS 2220.1 signals are selected, then the heat dissipation in the cabinet is higher. The full load output can be supported up to a 35C operating temperature external to the cabinet, decreasing to 100V load of 180W if the operating temperature is to be 45C.

Note: This performance assumes the T-Gen 50 Mode – **100V OUT V decreases with Supply V** setting in SmartConfig is ticked. If not, then the T-Gen2 current is higher at lower voltages, so the load will need to be reduced.

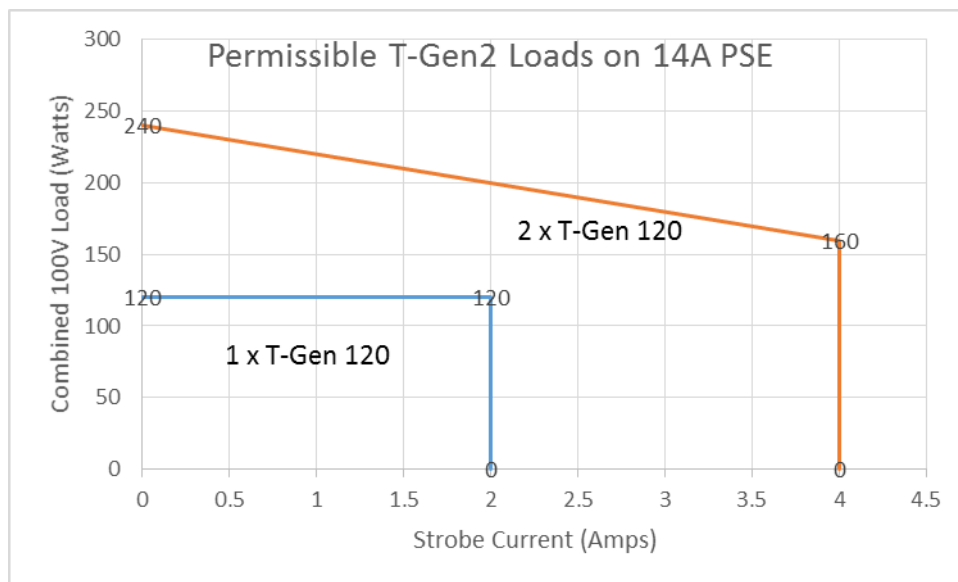


Figure 5 – 14A PSE T-Gen2 100V Load vs Strobe Current

Battery Capacity

The 15U cabinet has space for 2 x 12V 40Ahr batteries, plus the 14A PSE has a battery charger rated to this capacity.

The battery capacity depends on the 100V load, the strobe load, the equipment fitted and the warning signal being used. Using AS 2220.1 tones requires more battery capacity as the tones are active for a larger portion of the time period.

Table 1 shows the required battery capacity for two configurations using each of the AS 4428.16 and AS 2220.1 signals.

Table 1 - Standby Battery Capacities

System Configuration	AS 4428.16	AS 2220.1
1 x T-Gen 120 @ 120W 1 x PSE, 1 x User Interface 4 x Switching Modules 2A Strobe Load	17Ahr	24Ahr
2 x T-Gen 120 @ 120W ea 1 x PSE, 1 x User Interface 6 x Switching Modules 4A Strobe Load	24Ahr	33Ahr

POWER ON & TESTING

The mains power to the system can be switched off by using the switch on the General Purpose Outlet inside the cabinet. To completely isolate the mains supply from the system, remove the PSE mains plug(s) from the mains outlet.

The battery power to the system can be isolated by removing the fuse in the lead connecting the two batteries.

For the first tests apply only mains power to check the operation of the EWS without a battery. Once this is confirmed a battery can be connected.

- Power on and wait for the T-Gen2 to start up (<10s).
- Check the POWER and AUTO LEDs on the T-Gen2 User Interface turn on and that no faults are generated. If faults are generated refer to the T-Gen2 Instructions (LT0667) to use the OLED display to determine the faults that are present.
- After 30 seconds a battery not connected (nb) fault code will be shown on the PSE and the Power Fault LED on the User Interface will turn on.
- Connect the batteries and check the fault is cleared after 30 seconds.

COMMISSIONING & FAULT FINDING

Refer to the T-Gen2 Commissioning section in LT0667 for general instructions.

If faults are generated then refer to the T-Gen2 OLED display for information and to the specific module manuals for an explanation.

SPECIFICATIONS

	FP1129	FP1130
Weight	26kg	21kg
Size (W x H x D)	550 x 750 x 210mm	550 x 750 x 210mm
PSU Output Current (Peak)	14A	14A
DC Supply Voltage	19.2Vmin - 28.8Vmax	19.2Vmin - 28.8Vmax
Operating Temperature Range	-5C to +45C	-5C to +45C
Relative Humidity	0 to 95% non-condensing	0 to 95% non-condensing
Storage Temperature Range	-20C to +70C	-20C to +70C
Quiescent Current		
Audio enabled but idle (no audio)	300mA	100mA
Active Current - 27Vdc (plus Strobe)	6.2A @ 120W	
Avg Alarm Current (plus Strobe)		
AS4428.16 Evacuate Tone	2A @ 120W	
AS2220.1 Evacuate Tone	4.8A @ 120W	
100V Output		
Line Voltage - AC (Tones)	100V rms	
- DC (Supervision)	2.5V (56k ELD 5.0V (O/C))	
Line Power - Tones	120W rms	
- Audio	120W rms	
Maximum line capacitance	200nF	
Audio Frequency range		
+/- 1dB	260Hz – 3800Hz	
+/- 3dB	215Hz – 8400Hz	
Audio Performance		
SNR	≥75dB(A)	
THD	≤0.25%	
100V Speaker Line Supervision		
ELD - 1 Branch	56k 0.4W	
- 2 Branches	100k 0.4W	
Strobe Output		
ELD - 1 to 3 branches	1x10k - 3 x 27k 0.4W	
Current rating	Max 2.0A	
Audio Inputs		
Audio 1 & Audio 2	230mVrms (min) into 5kΩ isolated for full power	
Microphone - Input Level	3mVrms-100mVrms, PTT driven, supervised	
Digital Inputs		
Alarm, AIE, GP1-4	2k7 EOL, <3.5V Active	
Open Collector O/Ps		
OC1 & OC2	<1V @ 100mA, 30Vdc Optionally Load Supervised (fault <12V)	
OC3 & OC4	<1V @ 100mA, 30Vdc	
Interfaces		
OLED, 4 button menu structured		
QBus compliant	Master / Slave operation, User Interface and 100V Switching Module	
Slave T-Gen2	RJ45 cable within cabinet	
On-board Storage	4MB (configuration and audio files)	
Micro-SD Card	32GB FAT32 support	
Headphone Output		
Load impedance	8Ω min 6mW	
Output Level	1.3Vrms	

PART NUMBERS

FP1115, FP,T-Gen 60,24V,C/W INSTALL LIT & MTG

T-Gen 60 model of T-Gen2 able to drive a speaker load up to 60W. Supports two non-emergency audio inputs (BGM, paging), a microphone audio input (Speech or Paging), 6 supervised inputs (Alarm, Fault, Paging), 4 open-collector outputs, normally-energised Fault relay, supervised single polarity strobe output, and 100V speaker output.

FP1116, FP,T-Gen 120,24V,C/W INSTALL LIT & MTG

T-Gen 120 model of T-Gen2 able to drive a speaker load up to 120W.

FP1117, FP,100V SWITCHING MODULE,C/W LIT,LOOMS & MTG BRK

Provides 4 supervised, short-circuit isolated 100V outputs (each rated at 100W) from the T-Gen2's 100V output, along with control of each output by the T-Gen2 to provide area paging. A QBus slave module. Supplied on *MX1*-style mounting bracket with cables and EOLs. Mounts on the EWS cabinet. Can be used as a spare part or expansion module for FP1137.

FP1118, FP,100V SPLITTER MODULE,C/W LIT,LOOMS & MTG BRKT

Provides 4 supervised, short-circuit isolated 100V outputs (each rated at 100W) from the T-Gen2's 100V output. No control of the outputs is available. Signals fault to the T-Gen2 by superimposing a fault on the T-Gen2's 100V input. Standalone operation (not a QBus slave). Supplied on *MX1*-style mounting bracket with cables and EOLs. Can be used as a spare part of expansion module for FP1137.

FP1124 FP,GRADE 2 EWS UI 3U DOOR,C/W LOOM & MIC,GREY

The grey 3U 19" rack mounting door complete with the 4 Zone Grade 2 User Interface and PA microphone. A 1.5m power loom and microphone extension lead are included to allow connection to a T-Gen2 mounted in the back of the cabinet. Can be used as a spare part for the User Interface in FP1129, or for adding to a T-Gen2 in a rack cabinet.

FP1126 FP,GRADE 2 16Z EWS EXTENDER,3U 19" DOOR,GREY

A grey 3U 19" rack mounting door complete with a 16 Zone Grade 2 User Interface – but only 8 zones fitted. Connects on to FP1124 to expand the capacity from 4 zones to 12 zones. Add an FP1128 8 Zone Expansion Module to expand to the full T-Gen2 capacity of 20 zones.

FP1128 FP,GRADE 2 8Z EXPANSION BRD,C/W LOOM & MTG

An 8 Zone Expansion Module for providing 8 zones of evacuation control and indication. Fits onto FP1126 to expand to 20 zones, or can be used as a replacement for the 8 Zone Module already fitted.

FP1130, FP,T-GEN 2 EXP CAB,C/W 14A PSU,15U,BLANK DR

15U titania-coloured cabinet with a blank outer door and a 15U EWS gearplate mounted inside with a mains GPO and 14A PSE fitted. Suitable for add-on T-Gen2, 100V Switching Modules, 100V Splitter Modules and up to 40Ahr batteries.

FP1139, FP, PSE GEARPLATE MTG, 24V, 14A, SPARE

Replacement 14A PSE for the PSU in the EWS. This can also be used as an expansion PSU for larger systems.

FP1143, FP,T-GEN2 HLI BOARD

High Level Link Interface module allows an adjacent Vigilant MX1, MX4428 or F3200 Fire Panel using RZDU or Simplex 4100ESi Fire Panel using internal 4100Comms to be connected to the EWS to transmit alarm information (up to 32 fire zones to trigger BOWS) and monitor the EWS fault status.

ME0490 Mech Assy, 1955-44, T-GEN50, Dynamic Microphone

A noise-cancelling dynamic microphone suitable for plugging onto the T-Gen2 to provide emergency PA or for field recording of the digitised speech message(s). Includes a 1m extension lead. Suitable as a spare part for the microphone in the EWS.

SU0360 A 4488 4 Zone Paging Console: A 4 zone paging console with microphone and chime option that can be used with the SU0361 A 4489 Audio Switcher to achieve 4 area paging from remote locations. Up to two paging consoles can be connected to the SU0361 Audio Switch.

SU0361 A 4489 Audio Switcher: Used with the A 4428 4 zone paging console to provide relay outputs. Able to be mounted inside the EWS cabinet.

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