

SiPass integrated ACC-APM 12V/24V PSU Kit

Technical Manual



VANDERBILT

Document ID: I-200131

Edition date: 29.08.2018

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- Directive 2014/30/EU (Electromagnetic Compatibility Directive)
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- Directive 2014/35/EU (Low Voltage Directive)

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1 Safety

Follow all warnings and instructions marked on the device.

Keep this document for reference purposes.

Please take into account any additional country-specific, local laws, safety standards or regulations concerning installation, operation and disposal of the product.

Refer to a qualified electrician for installation.

2 Ordering information

Type	Item Number	Description
ACC-APM-1220	V54502-C162-A100	ACC-APM-1220 SiPass IP Contr. 12V 2A PSU
ACC-APM-2420	V54502-C163-A100	ACC-APM-2420 SiPass IP Contr. 24V 2A PSU
ACC-AP	V54502-C160-A100	ACC-AP SiPass integrated IP Door Contr.

3 General information

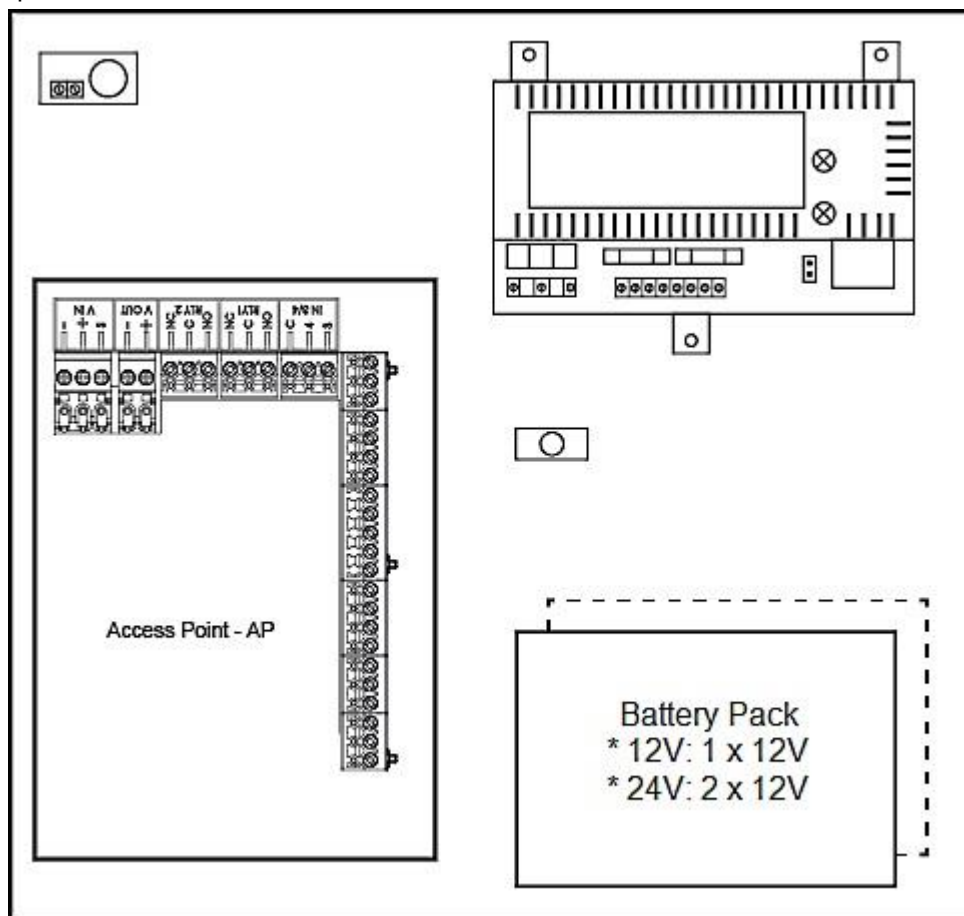
The ACC-APM PSU Kit is available in two voltage variants:

- 12V DC, ACC-APM-1220
- 24V DC, ACC-APM-2420

The kit is a compiled product consisting of the followings:

- Metal Housing
- One mounted SiPass integrated ACC-AP Access Point Controller PCB
- One Power Supply Unit (PSU)
- Space for batteries

It can be used in Access Control applications where a complete easy-to-use door control is required.



3.1 Metal housing

The housing has knock-outs for the signal cable wiring as well as the power mains cable.



WARNING

Be careful when removing the knock-outs as there are electronic devices inside. It is recommended to keep the lid on for greater rigidity in the housing when removing the knock-outs.

3.2 SiPass integrated Door Controller

The ACC-AP Controller can be ordered separately, but the PSU Kit is pre-wired such that the Power fail can be monitored on IN2 and Tamper on IN4. To use these functions, the installer must configure the SiPass integrated firmware in the same way.

For more information, refer to the *SiPass integrated Firmware Configuration Guide* in the SiPass integrated software bundle.

3.3 Power Supply Unit

The unit is a ready-to-use power supply for driving the ACC-AP controller as well as charging any batteries. The cables are pre-wired between the O/P connectors on the power supply and the ACC-AP (V IN) connectors, but are not plugged in at delivery.

See Section 4 Technical Data on page 7 for details of the PSU. [SiPass integrated](#)

3.4 Battery Support

There are spaces prepared in the housing for mounting of standard batteries. See Section 5.6 Battery Installation on page 13 for information on supported battery types.

3.5 Features

- High-efficiency, cost-effective power supply suitable for use in access control systems.
- Two independent output signals for **loss of mains** fault EPS (External Power Source), and **general fault** GEN (including Alternative Power Source, APS fault). Self-diagnostics can detect blown output and battery fuses, and low battery voltage.
- The PSU incorporates a battery-management system comprising low battery voltage detection and deep discharge protection to ensure that the battery is not permanently damaged through excessive discharge.
- A Brownout Filter ensures that short mains voltage dips do not create a false loss of mains alarm.
- Two LEDs assist with quick and easy installation by showing presence of mains, correct battery charging and a fault condition.
- Comprehensive protection is built-in as standard, including mains transient filtering, electronic output overload protection and fuses on the load and battery outputs.

3.6 Operational Time - examples

Example 1, 24V: One ACC-AP + one reader VR40S-MF + 24V lock strike plate (current 0.35A). Door set unlocked. Maximum time: **6 hours** with 2 x 12V 2Ah batteries.

Example 2, 24V: Same as above but using a valid card every 10 seconds (current 0.30-0.40A). Maximum time: **6 hours** with 2 x 12V 2Ah batteries.

Example 3, 24V: Same as above but using a valid card every third minute (current 0.30-0.40A). Maximum time: **8 hours** with 2 x 12V 2Ah batteries.

Example 4, 24V: Same as above but no valid card badges (current 0.30-0.40A). Maximum time: **10 hours** with 2 x 12V 2Ah batteries.

Example 5, 12V: One ACC-AP + one reader VR40S-MF + magnetic lock (current 0.85A). Door set locked. Maximum time: **8.5 hours** with 1 x 12V 7.0Ah battery. Installation

4 Technical Data

Item	12V Description	24V Description
Mains Input		
Rated Voltage / (Operational Voltage)	100-240Vac / (90 – 265Vac)	
Frequency	50 - 60Hz	
Input Current	1.0A	
Fuse	T2.0A 20mm HRC	
Output		
Voltage at Full Load		
Mains Power	12.8 – 14.2Vdc (13.8Vdc nominal)	27.0 – 28.0Vdc (27.6Vdc nominal) on mains power
Battery Standby	9.8 – 13.0Vdc	21.0 – 24.7Vdc
Ripple	<400mV pk – pk max @ Rated Voltage	100 mV pk-pk max
Fuse		
Output	F2.0A	F2.0A
Battery	F2.0A	F2.0A
Continuous Output Current		
Mains	2.0 A	2.0A
Weight (kg) (excluding battery)	4.0 kg	
Environmental Temperature	-10 to +40°C (operating) 75% RH non-condensing -20 to +80°C (storage)	
Dimensions, W x H x D	330 x 355 x 85 mm	
Standby Battery Management	Warning: risk of explosion if incorrect battery type fitted. Dispose of used batteries according to the instructions.	
Maximum Battery Size (not supplied with unit)	1 x 12V 7.2Ah Dimension: 151 x 65 x 94 mm Valve Regulated Lead Acid	2 x 12V 2.0Ah Dimension: 178 x 35 x 60 mm Valve Regulated Lead Acid
Protection	Reverse battery connection protection Deep discharge protection. Battery disconnect at 10.6V battery terminal voltage	Reverse battery connection protection. Deep discharge protection Battery disconnect at 21.0V battery terminal voltage

5 Installation and commissioning

The PSU Kit must be mounted in a protected area in the same way as a single ACC-AP Access Point. See Section 7 Mechanical on page 15 for a view of the housing and where to mount the fastening screws.

Note that the cabling should be safely fixed with cable ties to withstand any vibrations.

As the housing includes an Access Point PCB with identical terminal blocks, all the functionality of a single ACC-AP applies.

5.1 Connections and signalling

The ACC-APM PSU Kit has a power output for driving the ACC-AP as well as charging the batteries.

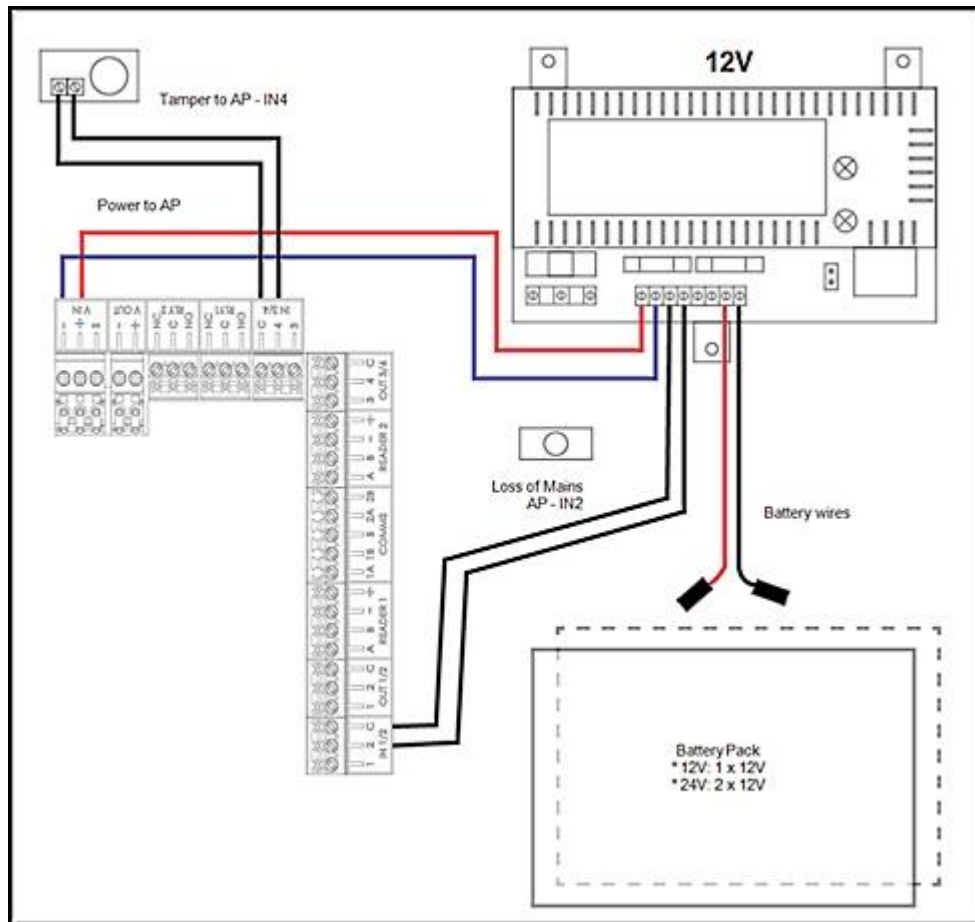
It also includes signaling outputs that can be used for monitoring:

- Mains power fail (pre-wired to ACC-AP - IN2). Must be selected in system software.
- General malfunction or no batteries
- Tamper for lid and removal from wall (pre-wired to ACC-AP - IN4). Must be selected in system software.

Connection	Description	Type and rate
Mains Power	Mains Power input (L, Earth, N). Warning! - Ensure that the cables are mounted with necessary glands.	Cable: Minimum 0.75mm ² [3A], 300/500Vac
O/P +, -	Connection to ACC-AP (observe polarity).	Voltage Output
EPS Fault	Relay output for mains fail. Open if loss of mains for >8s. This signal is pre-wired to ACC-AP input IN2 . Note that to use this function, it must be configured in the SiPass integrated firmware.	0.10A @ 60Vdc 16Ω solid state relay contacts, volt free.
GEN Fault	Relay output for General Fault. Open in fault condition. 12V: Open if battery terminal voltage < 11.5V 24V: Open if battery terminal voltage < 23.0V when operating in standby with no mains present, battery not present or Output and/or battery fuse blown. Can be connected to ACC-AP input for monitoring. Note that if connected, the function must be configured in the SiPass integrated firmware.	0.10A @ 60Vdc 16Ω solid state relay contacts, volt free
BATT +, -	Connection to standby battery. Use cables provided (observe polarity).	Voltage Output
Tamper	Open when lid is open or if removed from the wall. This signal is pre-wired to ACC-AP input IN4 . Note that to use this function, it must be configured in the SiPass integrated firmware.	0.5A @ 30Vdc volt free contact

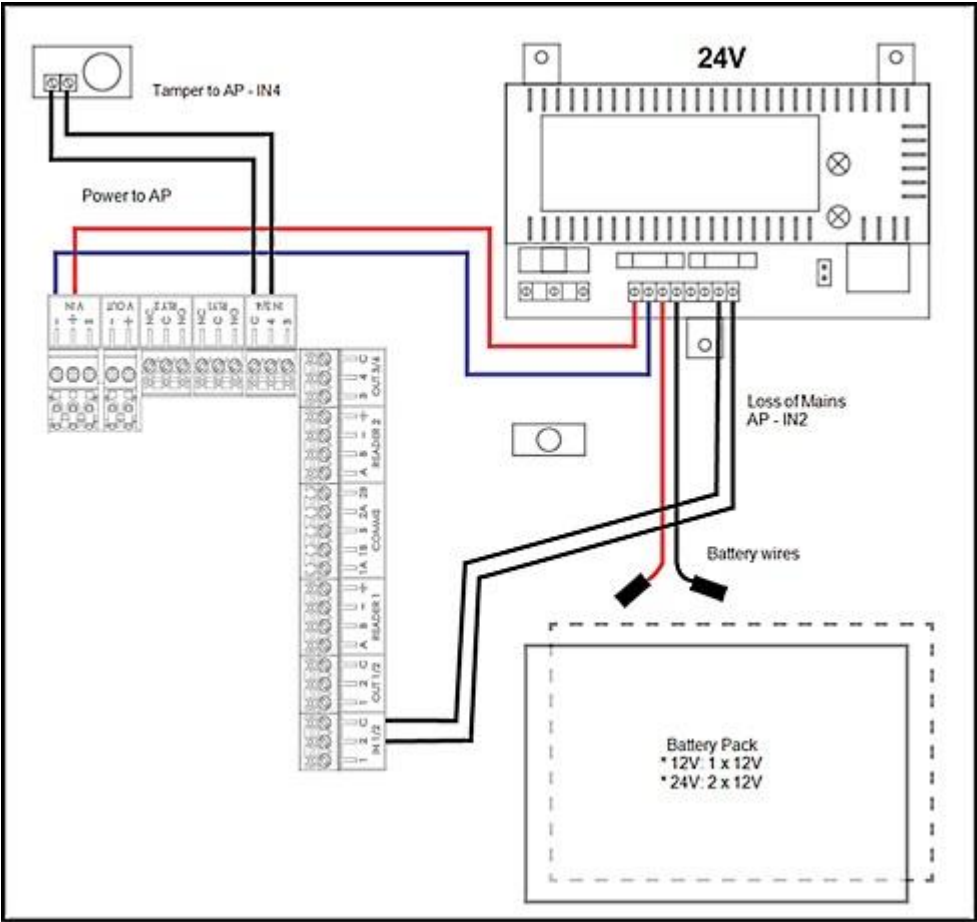
5.2 Pre-wired cables 12V

The diagram below shows the factory pre-wired cables.



5.3 Pre-wired cables 24V

The diagram below shows the factory pre-wired cables.



5.4 Diagnostics

5.5 Local Diagnostics

Green LED On = Mains Present

Red (12V) or Yellow (24V) LED Fault Diagnostics according to table:

Red (12V) / Yellow (24V) LED (fault)	Green LED (mains)	Status
OFF	ON	Normal: Battery fully charged
One short flash every second	ON	Normal: Battery charging but not fully charged
Flashing: 1 second On 1 second Off	ON	Fault: Output fuse or battery fuse blown, or battery missing
One short flash every 3 seconds	OFF	Fault: No mains, battery supplying load.
OFF	OFF	Fault: No mains, no output, batteries disconnected or completely discharged

5.5.1 Power supply specific installation

This unit is only suitable for installation as permanently connected equipment and must be secured to the building structure before operation. This PSU is NOT SUITABLE for external installation. EQUIPMENT MUST BE EARTHED.

An appropriate, readily accessible disconnect device must be incorporated external to the equipment. Before installation, ensure that the external disconnect device is OFF and that it can easily be turned OFF again during operation, if required. The PSU should be installed according to all relevant safety regulations applicable to the application.

Mounting

1. Mount securely in correct orientation allowing minimum clearance (>100 mm surrounding).
2. Ensure that the rear tamper is not in a position that will affect its operation. For example, over a mortar course, recess or raised area on the wall.
3. Route mains and low voltage output cables via different knockouts and/or cable entry holes.



WARNING

Be careful when removing the knock-outs as there are electronic devices inside. It is recommended to keep the lid on for greater rigidity in the housing when removing the knock-outs.

4. Use bushes and cable glands rated to UL94 V-1 minimum.

Mains Power Up

1. Attach correctly rated mains cable (minimum 0.75mm² [3A], 300/500Vac). Fasten with cable ties and use appropriate glands to route the cable through the housing.
2. Apply mains power. Check for 13.8V on load outputs (**12V** model) or 27.6 V (**24V** model).
3. Check green Mains LED is ON.
4. Disconnect mains power.

Load Output

1. Loop correctly rated load cable through and attach to terminal block, note polarity. Fasten with cable ties.
Note: the power is pre-wired to ACC-AP but not plugged in.
2. Apply mains power.

3. Check Green Mains LED is ON.
Note: Red (**12V**) / Yellow (**24V**) Fault LED may flash to indicate no battery has been connected. This is normal. Verify load is operating correctly.
4. Disconnect mains power.

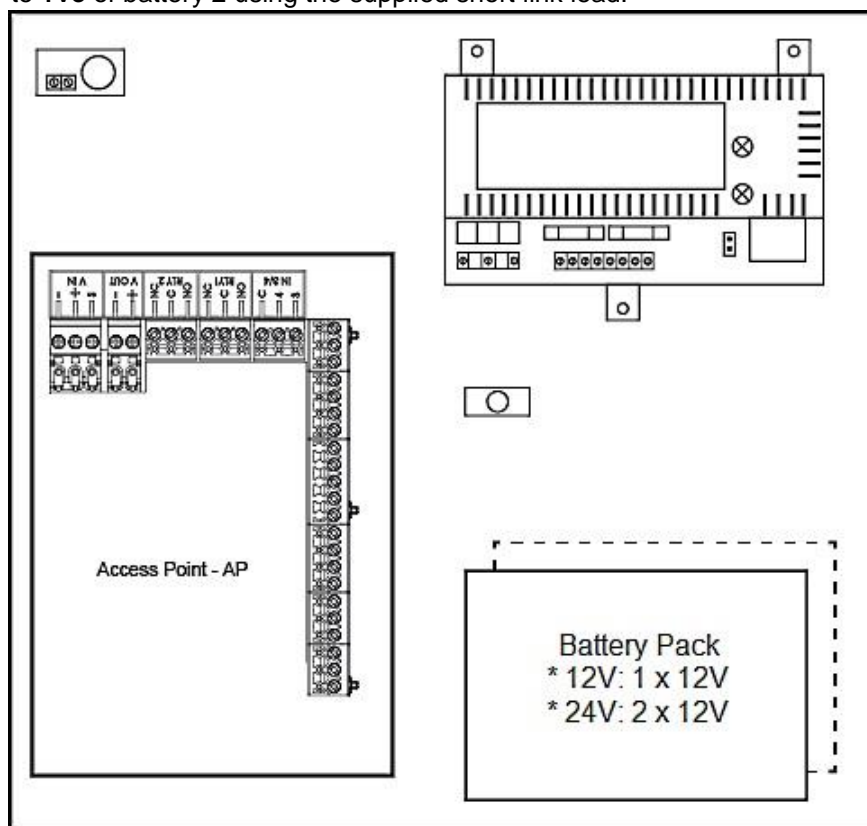
Signaling

- Connect EPS (pre-wired to IN2) and optionally the GEN (not pre-wired) fault outputs to appropriate inputs of control and indicating equipment (CIE).
See Section 5.1 Connections and signalling on page 8.

5.6 Battery Installation

Model of PSU	12V	24V
Battery Model	1 pce 12V 7.2 Ah	2 pcs 12V 2 Ah
Charge voltage minimum (boost)	14.2V	
Charge current minimum	1A	500mA
Discharge current minimum	2A	
Flame-retardant	UL94, V2 or better	

1. Attach supplied battery cables to terminal block and batteries.
Note: Ensure correct polarity of battery connections: **+ve** use **Red** lead, **-ve** use **Black** lead.
2. Position the battery (as shown in the figure) avoiding the cover earth connection spades and the cover retaining screws.
Note: The 24V variant has **two** 12V batteries that must be fitted. Connect **-ve** of battery 1 to **+ve** of battery 2 using the supplied short link lead.



3. Apply mains power.
 Check that Green Mains LED is ON. Check there is no fault indicated by the Red (**12V**) or Yellow (**24V**) Fault LED. For more information, see Section 5.4 Diagnostics on page 11.
4. Disconnect mains power.
 Check that the batteries continue to supply voltage and current to the output load. Check that Green Mains LED is OFF and a Loss of Mains (EPS) fault occurs.
Note: Batteries must have sufficient charge to supply the output load.
5. Reconnect mains power.
 Check that Green LED is ON.
6. Remove Output/Load fuse.
 Check that Red (12V) / Yellow (24V) Fault LED is indicating a fault. For more information, see Section 5.4 Diagnostics on page 11.
7. Replace Output/Load fuse.
 Check that Red (12V) / Yellow (24V) Fault LED is OFF and the General PSU Fault has been cleared.

6 Operation and maintenance


6.1 Operation

In the event of loss of mains, a battery fault or a GEN fault, the corresponding fault signal contacts will open.

If the output of the PSU fails, the cause of the failure should be investigated, e.g. short circuit load, connection of a deeply discharged battery (which is indeed monitored). The fault should be rectified before restoring power to the PSU. If any of the fuses require replacing, ensure the correct fuse rating and type is used.

6.2 Maintenance

This unit is intended for use by Service Personnel only. There are NO USER SERVICEABLE parts inside. There is no regular maintenance required of the PSU other than periodic testing, and replacement of the standby battery.


	CAUTION
	<p>RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE</p> <p>DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS</p> <p>This applies also for the Lithium battery in the Access Point controller.</p> <p>Reference should be made to the battery manufacturer's documentation to determine typical/expected battery life with a view to periodic replacement of the battery.</p>

6.3 Disposal



This product falls within the scope of EU Directives 2012/19/EU Waste Electrical and Electronic Equipment (WEEE) and 2006/66/EC (Battery). At the end of life, the product must be separated from the domestic waste stream and disposed via an appropriate approved WEEE disposal route in accordance with all national and local regulations.

Before disposal of the product, any batteries must be removed and disposed separately via an appropriate approved battery disposal route in accordance with all national and local regulations. Package used batteries safely for onward transport to your supplier, collection point or disposal facility.

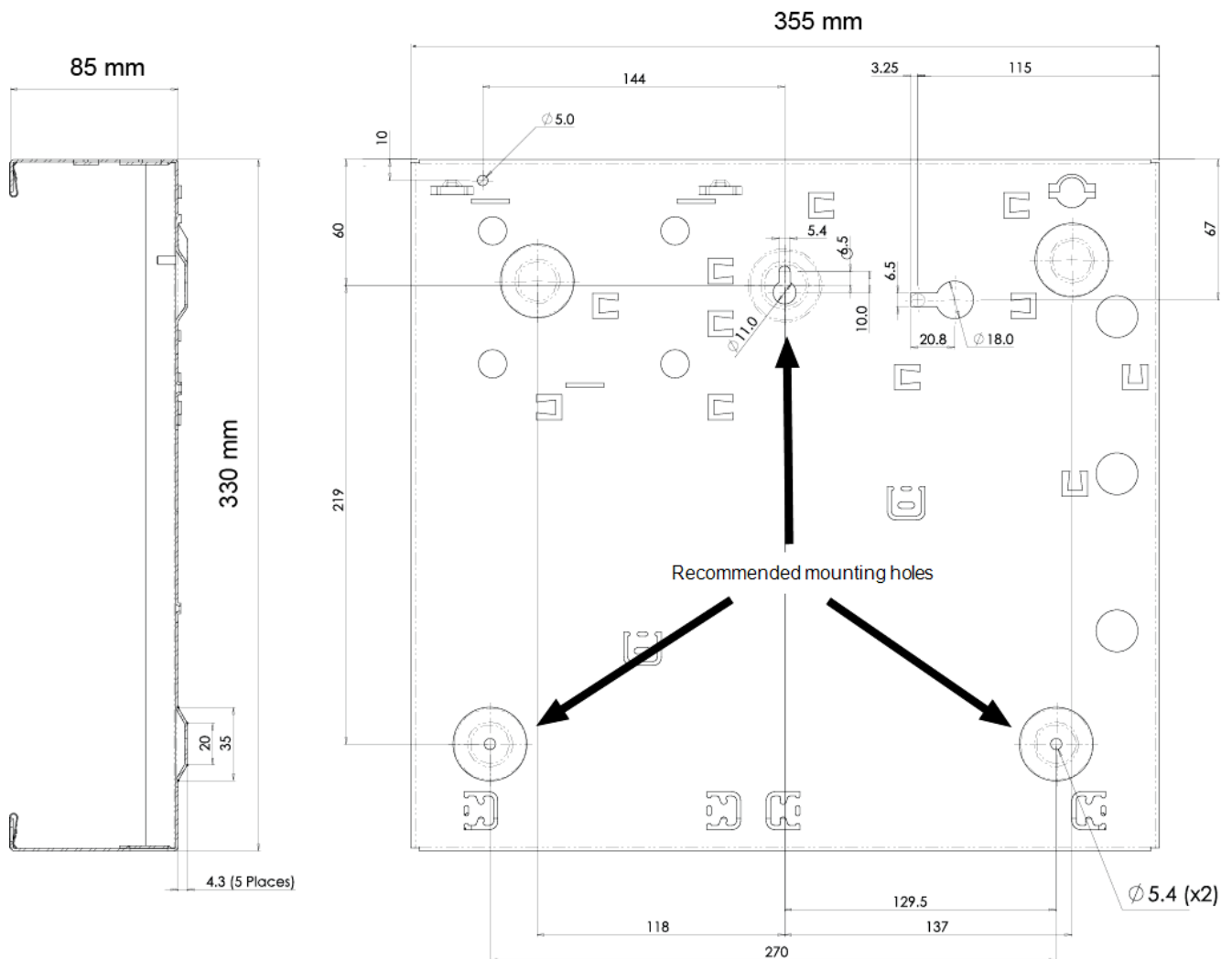
	CAUTION
	<p>Risk of fire or explosion if bare battery wires are allowed to touch.</p> <p>See specification for battery type information. The battery is marked with the crossed-out wheeled bin symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg).</p>

The packaging supplied with this product may be recycled. Please dispose of packaging accordingly.

7 Mechanical

The drawing illustrates the size and the position of the mounting holes.

Note that the drawing is NOT scale 1:1.





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Document ID: I-200311

Edition date: 29.08.2018