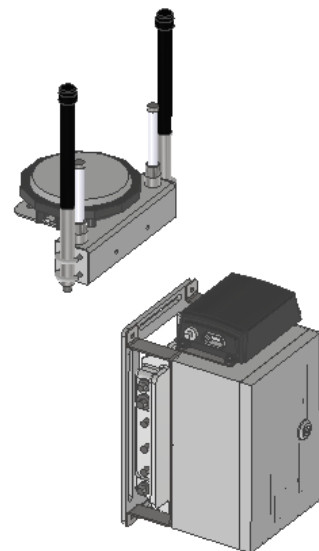




Specification Sheet

MTGA SITE AWARE BOX (SAB) V3



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Revision number	Date published
2.0	22/10/2020

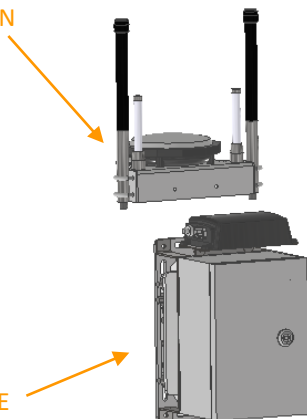
PRODUCT OVERVIEW

The MTGA Site Aware Box (SAB) V3 provides a robust and cost-effective solution to protecting and enhancing performance of the CAT© Site Aware system. Taking the advantage of a clean and modular design, the SAB V3 meets the challenge of protecting site-critical radio communication within the AOZ mine site environment, easily reconfigurable for fitment across a diverse fleet, enhancing any vehicle with the ability to operate safely and efficiently, becoming 'Site Aware'.

SAB V3 SYSTEM OVERVIEW	
SYSTEM VOLTAGE	12VDC – [SAB V3 12VDC KIT] 24VDC – [SAB V3 24VDC KIT]
HARNESS KITS	CABIN HARNESS
	INTERFACE HARNESS
	INTERNAL HARNESS
	ANTENNA HARNESS
	SAB V2 ADAPTER HARNESS
	EXTENSION HARNESS KITS
SAB V3 ENCLOSURE	IP rated ergonomic enclosure housing; regulated power electronics for CAT© Site Aware equipment
SAB V3 MOUNTING KITS	Modular bracketry Stauff Clamps, Magnet and Clamp kits for various mounting configurations
ANTENNA STATION	Small profile mounting of QTYx2 Omnidirectional Antennas, QTYx1 Zephyr 3 © Rugged GPS Antenna

FEATURES	
ANTENNA STATION:	
✓	Low profile, reconfigurable sandwich clamp mounting bracketry
✓	Mounting for OD3 and Zephyr 3 Rugged GPS Antennas

ANTENNA STATION



SAB V3 ENCLOSURE

FEATURES	
SAB V3 ENCLOSURE	
✓	Heat resistant, dust-proof and splash (water) resistant IP66 mild steel and lockable enclosure
✓	Consistent install across vehicle fleet
✓	Lightweight and small profile enclosure, under maximum single-person lifting weight
✓	LED status and fuse block for electronic equipment, with user-friendly labels for quick maintenance
✓	MTGA Boom Gate Transmitter
✓	Door hinge able to be installed on opposite side for modular install
✓	Moisture resistant with moisture indicator and gland breather for internal pressure stabilisation
✓	Single harness install, featuring DC power regulator, preventing occurrence of radio brownouts during ignition system start up and shutdown, including vehicle stalls

FEATURES	
VEHICLE CABIN:	
✓	Integration with G407 Display module, including ON/OFF switch
✓	MS955 Receiver programming access inside cabin via RS232 connection
✓	Integrated MTGA HME / LV Boom Gate Switch
✓	Low profile, heavy duty braided cable harness for optimal protection and flexibility
✓	Quick and simple system install, easily adjustable inside diverse fleet cabin space

FEATURES	
HARNESS KITS	
✓	Adapter harness for legacy SAB V2 cabin harness
✓	Extension harnessing for additional lengths, incorporating vehicle installs with larger footprint
✓	All external harnessing heavy duty braided for optimal protection against harsh environment and abrasion
✓	Sealed Deutsch © plugs for ease of install and optimal cable protection

FEATURES	
MOUNTING	
✔	Modular mounting bracketry available in various kits for diverse mounting solutions, including ROPs, toolbox interior, Stauff/sandwich clamps, magnet mounts, handrail clamps

Mounting Adapters:	
✔	Handrail
✔	Roll Over Protection System
✔	Magnets
✔	Roof Rack frame
✔	Toolbox

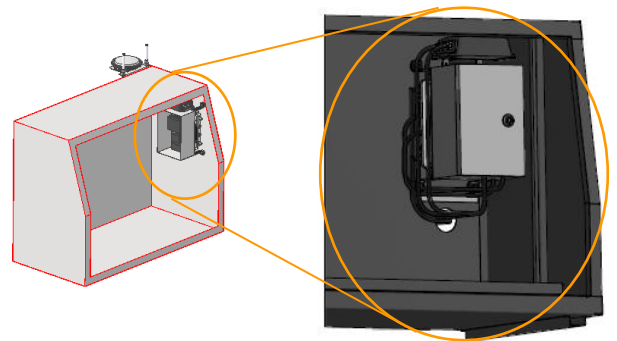
The SAB V3 provides advantageous ergonomics and added protection from the elements, while maintaining technical accessibility. Proven to lower the occurrence of ‘bubbles’ within an Autonomous Operating Zone (AOZ), the SAB V3 is available for 12VDC and 24VDC versions, suitable for host vehicle power supply.

Flexible mounting arrangements and technical access to equipment rapidly decrease installation and maintenance, lowering system downtime. The minimal design approach streamlines standardisation across vehicle assets – saving costs across business operations

Lightweight and small enclosure profile



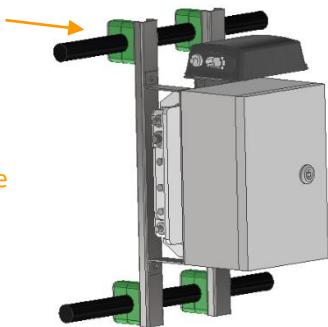
SAB V3 Antenna Station mounted to LV roof bracket



SAB V3 toolbox mounted

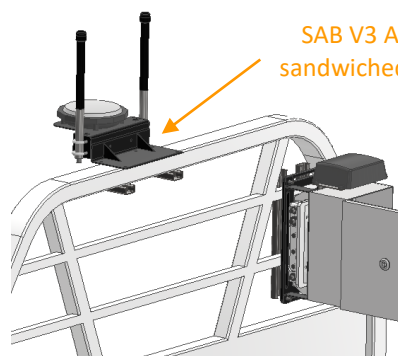
Suitable for rail mounting, e.g. handrails on HME

Flexible mounting arrangements provide the opportunity to access enclosure without the need for Working At Heights



SAB V3 Stauff© Clamp mounting

SAB V3 Antenna Station – sandwiched clamped to ROPS



SAB V3 mounted with ROPS

SAB V3 Enclosure

The SAB V3 provides several major upgrades and enhancements compared with previous Site Aware system installations, especially the SAB V2 enclosure. Keeping with the latest technology, the enclosure fitout is clean and tidy, providing optimal access to components for quick and simple diagnosis, while protecting cabling and electronic componentry for long durability.

SAB V3 ENCLOSURE	
ITEM	Description / Value
IP Rating	65
Weight	15 KG (excl. cabling)
Dimensions	300 x 200 x 150 (H x W x D mm)
IO [Gland Plate]	Flange mounted: QTYx1 HDP 23 pin, 2x DT 4 pin
Peripheral Devices	Reconfigurable mounting bracket for MS955 Receiver & Cisco AP / AVI LET Radio
Mounting	Bracket with Stauff© Clamps [standard], reconfigurable mounting solutions optional extras
Mounting Bracket	Thick Plate – 1.8KG
Moisture Protection	Moisture Indicator/Absorber + Gland Breather

3 Radio DC Power Regulator



INPUT: 8-40VDC
OUTPUT: 12VDC 10A 120W
IP 68 Rated

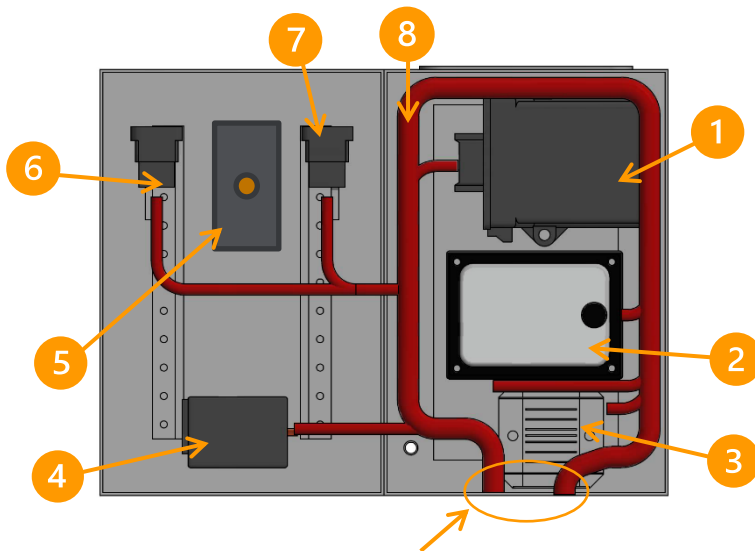
Protecting LV from bubbling during startup/shutdown

2 LED 10-Way Fuse Block

Waterproof
Transparent cover
10 Way Blade Fuse
LED Indicators Built-In
for rapid maintenance



SAB V3 Enclosure - Internal



Flange mounted on Gland Plate:

- QTYx1 Deutsch HDP 23 pin (main)
- QTYx2 Deutsch DT 4 pin (Radio)
- Gland Breather (moisture control)

SAB V3 ENCLOSURE CONTENTS	
ITEM #	COMPONENT
1	Shutdown Timer
2	LED Fuse Block
3	Radio DC Power Regulator
4	MTGA Boom Gate Radio Transmitter
5	Moisture Indicator
6	Reverse Contact Relay
7	Power Contact Relay
8	SAB V3 Internal Harness Kit – Neutral splicing exterior to braiding for convenient maintenance access

SAB V2 LEGACY SYSTEM COMPARISON

Major enhancements set the SAB V3 above legacy systems, especially the SAB V2.

SAB V3 LEGACY SYSTEM COMPARISON			
SAB V2 - CABIN		SAB V3 - CABIN	
✓	G407 Display Interface	✓	G407 Display Interface
✓	Integrated MTGA LV/HME Boom Gate Switch	✓	Integrated MTGA LV / HME Boom Gate Switch
⊖	MTGA Boom Gate Transmitter inside cabin presents installation inconsistency to accommodate in variety of vehicle cabins and risk of damage	✓	MTGA Boom Gate Transmitter moved to SAB V3 enclosure, protected and consistent location
⊖	GPS Receiver programming hard to access. Cable exposed to outside environment.	✓	Programming access to MS955 Receiver inside cabin - software updates can be completed inside vehicle. Cable port protected inside.
SAB V2 - ENCLOSURE		SAB V3 - ENCLOSURE	
✓	Consistent location for all components	✓	Consistent location for all components
⊖	Cradle Design – requires crane and multiple technicians for install	✓	Lightweight and small profile for single technician install
⊖	Design is dedicated for roof mounting ONLY	✓	Bracketry kits provide variety of mounting methods, not limited to vehicle roof, including ROPS and toolbox mounting adapters
⊖	Roof Access required	✓	Enclosure can be mounted below Working At Height limits
⊖	No internal moisture protection	✓	Internal componentry protected with additional moisture control devices: <ul style="list-style-type: none"> - Moisture Indicator - Gland Breather with secure locking nut
⊖	Gland Plate mounted on side – increased risk of environmental wear	✓	Gland Plate mounted underneath – lower risk of damage to cabling and plugs
⊖	Redundant reverse beacon and buzzer mounted to cradle	✓	No beacon or buzzer in design
⊖	Antenna Station mounted to Cradle – rigid design	✓	Low profile Antenna Station provides optimal mounting location away from enclosure and integrated with vehicle fitout
⊖	Uses superceded parts: <ul style="list-style-type: none"> - HIM Interface - Radio Power Boost Module 	✓	<ul style="list-style-type: none"> - xHIM-less Kit - New robust Radio Power Boost Module, IP68 rated - eliminates risk of moisture damage
	Radio externally mounted		Radio externally mounted
	GPS Receiver externally mounted		GPS Receiver externally mounted
		✓	MTGA Boom Gate Transmitter housed inside enclosure for consistent install and protected location



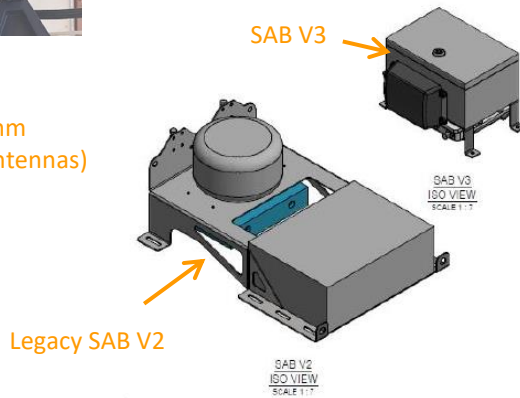
SAB V2



SABV3 Cradle and Enclosure

Dimensions: 680 x 500 x 270 mm (LxWxH) (excl. GPS receiver, antennas)

Weight: 30KG



Legacy SAB V2

SAB V3

SAB V3 / SAB V2 profile comparison

SAB V3



SAB V3 Enclosure

Dimensions: 350x300x230 mm (HxWxD) (incl. GPS Receiver & Radio)

Weight: ~15KG

6-Way Fuse Block with Negative Busbar



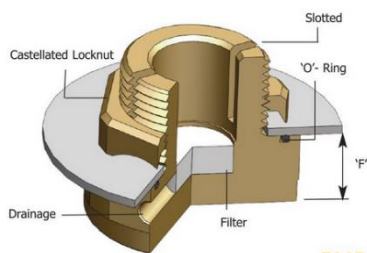
LED 10-Way ATC Blade Fuse Block



FEATURES:

- Waterproof
- Voltage input rating: 32V DC max
- Output terminal rating: 25A max per circuit
- Red LED indicates when fuse is broken
- Insulating cover design for dust proof

SAB V3 MOISTURE CONTROL



781E

FEATURES:

- Drains equipment susceptible to moisture collection
- Enables equipment to breathe
- Serrated washer for secure



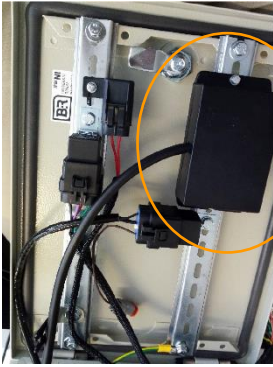
Hydrosorbent mini canister

- Protects enclosed area up to 85L
- Built-in indicator (OR -> clear signals need for reactivation)
- Lifetime protection
- Dimensions: 100x50x14mm
- Mil spec MIL-D-3464 Typed 1 & 11

SAB V3 DC Regulator



Susceptible for moisture ingress and damage from vibration



SAB V2 Radio Power Boost Module

FEATURES:

- Design meeting RoHS/CE
- 100% full stable current output
- Non-isolated between input and output
- Internal capacitor: NCC & NICHICON (high reliability)
- 100% full load burn-in test
- Die-cast aluminium shell, or aluminium shell with oxidation resistant coatings to avoid rust, epoxy potting
- Cooling by free air convection
- Surface mountable
- Input voltage range: 8-40V DC
- Output voltage: 12V DC
- Output max. current: 10A
- Output max. power: 120W
- Efficiency: 90%
- Waterproof: IP68
- Working temperature: -30°C ~ +80°C
- Size: 74x74x32mm
- Weight: 300g
- Protections: over-current, low-voltage, over-temperature and short-circuit

SAB V3 BUBBLE EVENT PERFORMANCE



Based on initial site testing, the SAB V3 outperforms SAB V2 in reliability, heavily reducing the incidents of 'bubbling' within an AOZ:

- Reducing site downtime
- Reducing fault-finding maintenance

Number of AMT stoppages cause by particular machine: Value indicates number of AMT stopped because of a bubble event:

Type of Machine	31 Aug	1 Sept	3 Sept	4 Sept	5 Sept	6 Sept	8 Sept	9 Sept	10 Sept	11 Sept	12 Sept	13 Sept	17 Sept	18 Sept	19 Sept	20 Sept	21 Sept	22 Sept	24 Sept
	ust..	embe..	embe..	embe..	embe..	embe..	embe..	embe..	temb..	temb..	temb..	temb..	temb..	temb..	temb..	temb..	temb..	temb..	temb..
Light Vehicle		6	5		11	5	22	7		7	1	59				8	36	126	
Light Vehicle		1	1		10			1					13		2	21			
Light Vehicle	1							27						1					1
Light Vehicle	1							6	4										
Light Vehicle			2			3													
Light Vehicle										2	1								
SAB V3				1													1		





Flexible mounting options for custom install

Small profile allows technical access & fits easily amongst other equipment



Antenna Station lightbar mounting

SAB V3 flush ROPS mounting

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