

File 39.335 Sheet 15  
ROW 46.9'

File 39.335 Sheet 15  
ROW 60'

File 39.335 Sheet 15  
ROW 100'

Backup Battery  
Proposed Location

Box

Mast  
ARMS

File 39.335 Sheet 15  
ROW 60'

File 39.335 Sheet 15  
ROW 5'

File 39.335  
Sheet 15  
ROW 5'

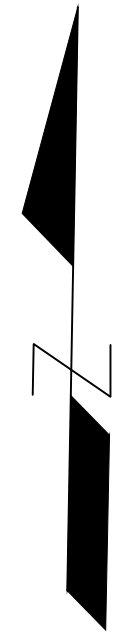
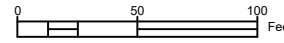
US123

US76

File 39.335 Sheet 15  
ROW 75'

File 39.335 Sheet 15  
ROW 56.1'

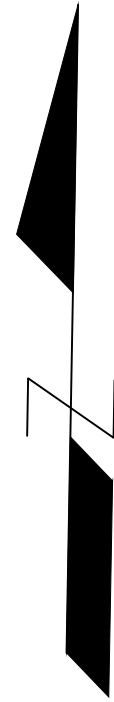
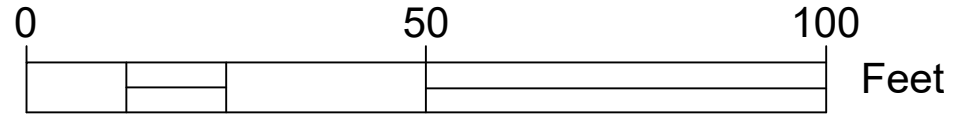
File 39.335 Sheet 15  
ROW 50'



City of Clemson  
Signal Cabinet Backup Battery

Overall US-76 and US-123

8/5/2024	VERSION: 1.0
1:80	DESIGNED BY: XXXX
PLOT DATE: 10/18/2024	DRAWN BY: JAMES S



File 39,335 Sheet 15  
 ROW 100'

Backup Battery  
 Proposed Location

Box

Mast  
 ARMS

US123

ONLY

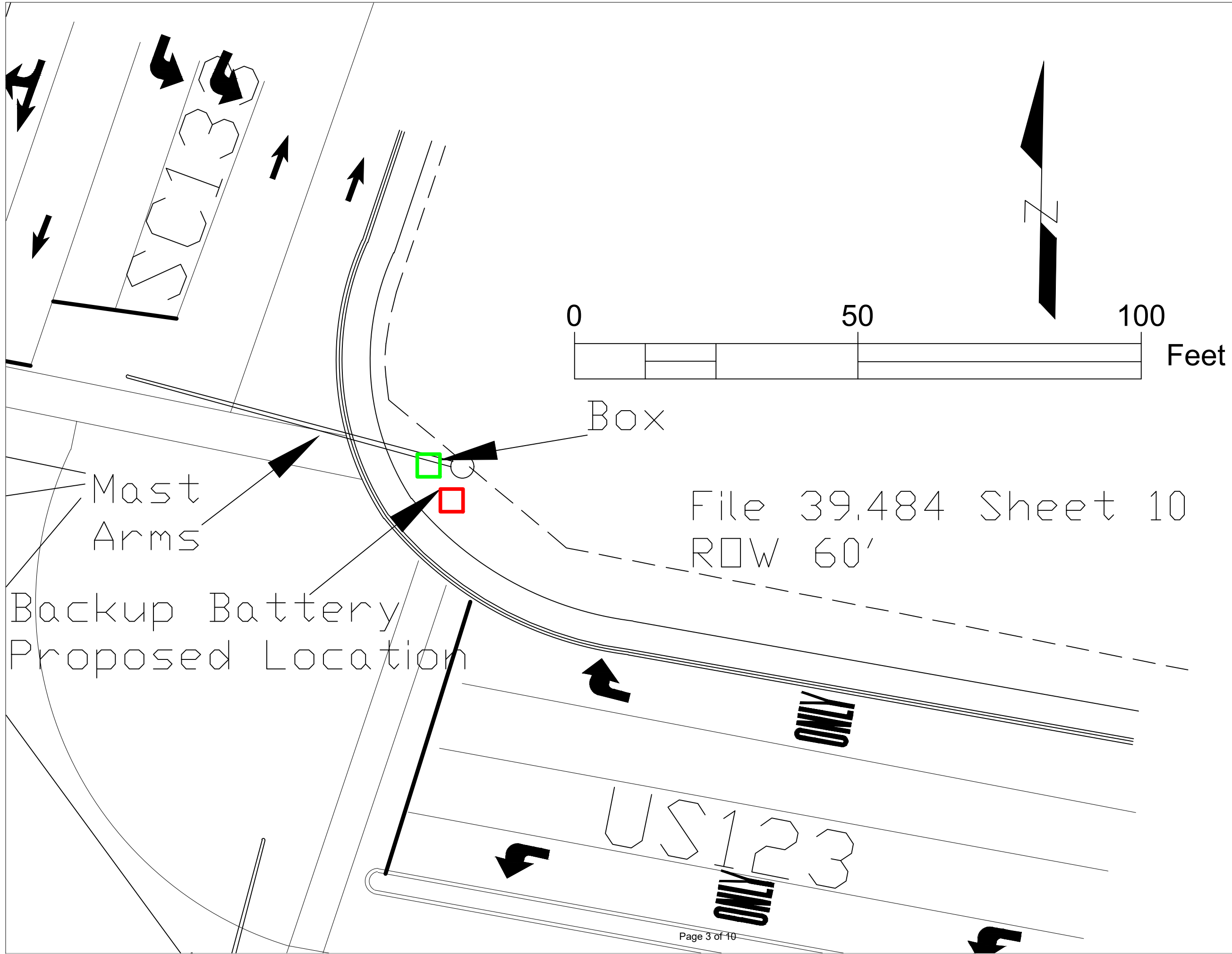
ONLY

ONLY



City of Clemson  
 Signal Cabinet Backup Battery  
 Battery Location US-76 and US-123

8/5/2024  
 1:24  
 VERSION: 1.0  
 DESIGNED BY: XXXX  
 PLOT DATE: 10/18/2020 DRAWN BY: JAMES S

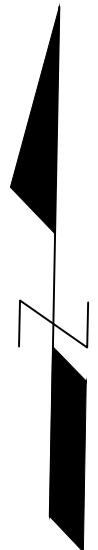
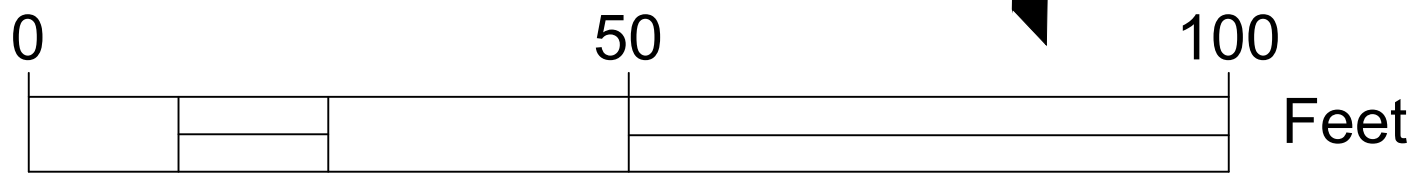


Mast Arms

Backup Battery Proposed Location

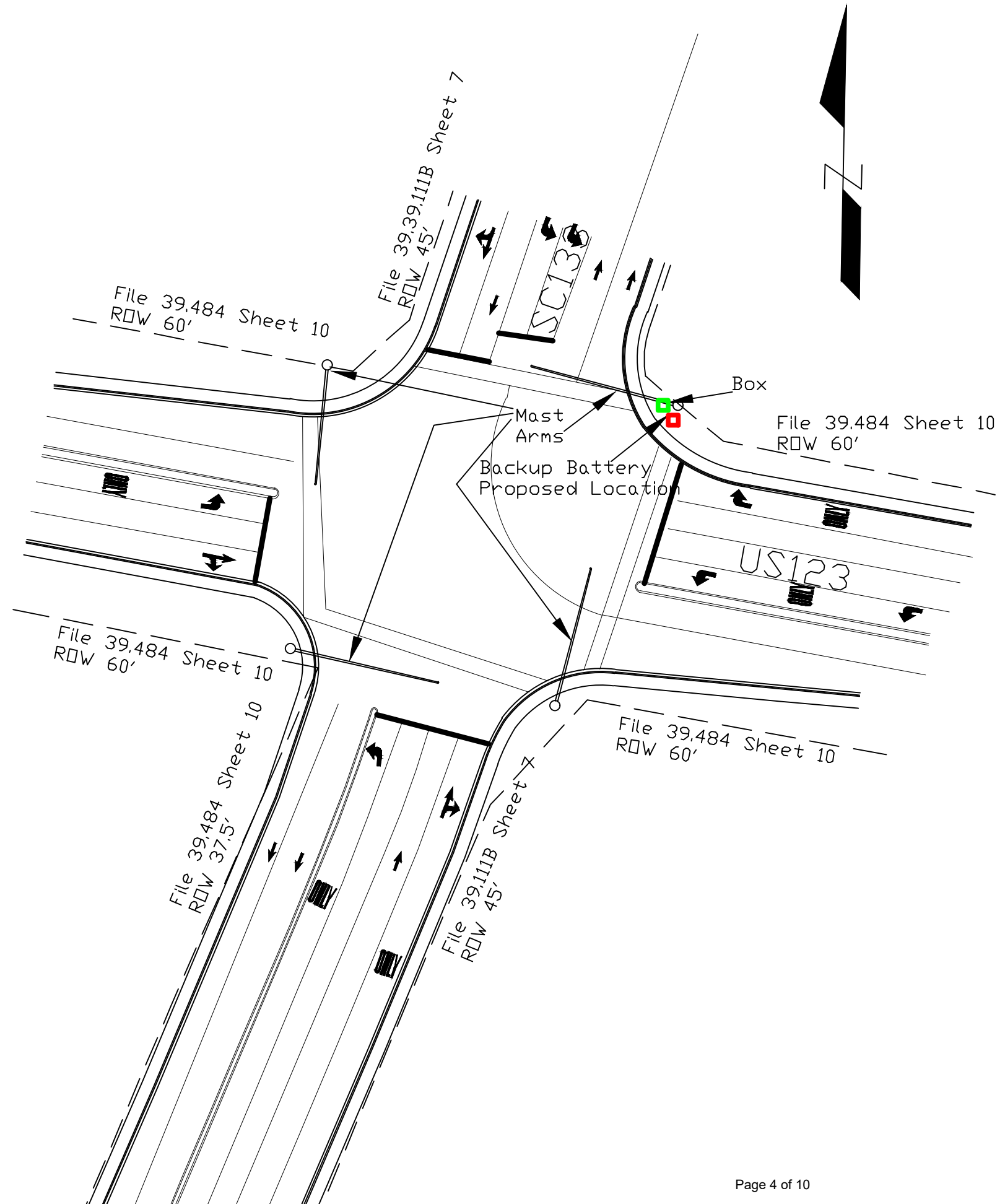
Box



File 39,484 Sheet 10  
ROW 60'



City of Clemson  
Signal Cabinet Backup Battery  
Battery Location US-123 and SC-133

8/5/2024	VERSION: 1.0
1:16	DESIGNED BY: XXXX
PLOT DATE: 10/18/2020 DRAWN BY: JAMES S	



8/5/2024	VERSION: 1.0	4	
1:48	DESIGNED BY: XXXX	 	
PLDT DATE: 10/18/2024	DRAWN BY: JAMES S	City of Clemson Signal Cabinet Backup Battery Overall US-123 and SC-133	



an EnerSys® company

# FXM HP 1100

## Rugged UPS Module



- 1100W/VA UPS designed to operate in extreme environments and provide maximum flexibility
- Advanced next-generation control and monitoring platform with high resolution color touchscreen LCD display with advanced local UI
- Built-in data loggers to monitor performance logs, user configurable alarms and advanced equation editing for custom data and actions
- Integrated USB host for local firmware upgrades, configuration updates, backup, restoration and cloning
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and reporting dry contacts allow monitoring and controlling of key functions

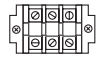

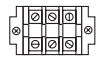
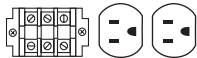
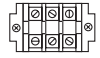


**The FXM HP UPS continues the longstanding excellence in Battery Backup Systems by ensuring equipment in security, communications, traffic, industrial environments, and many other critical applications remains safe and protected from power disturbances and outages.**

Thanks to its powerful programmable temperature compensated battery charger, the FXM UPS is capable of providing the runtime and extended battery life you need. The FXM HP colored LCD touchscreen display provides access to multiple configurable tabs for quick system status, overview and configuration without the need of a laptop.

Multiple communication ports including two Ethernet connections permits simultaneous local craft access as well as permanent LAN/WAN connectivity. A USB key may also be used to quickly backup and restore site configuration settings and data logs. Enhanced security using modern encryption technology ensures proper authentication and privacy for remote connection with the UPS. Environmental conditions and other equipment can be monitored via a single IP interface via CAN port using Alpha® Analog Digital Input Output (ADIO) devices.

# FXM HP 1100 Rugged UPS Module

Electrical	
<b>120VAC Model</b>	
<b>Battery:</b>	<b>String Voltage:</b> 48VDC <b>Battery Breaker Rating:</b> 50A <b>Maximum Charging Current:</b> 15A
<b>Input:</b>	<b>Nominal Voltage:</b> 120VAC <b>Voltage Range:</b> 85 to 171VAC <b>Frequency:</b> 50Hz or 60Hz (Autodetect Frequency is the default configuration, can also be manually configured.) ±5% <b>Maximum Current:</b> 15A (@ Nominal voltage and max battery charging current) <b>AC Breaker Rating:</b> 20A
<b>Output:</b>	<b>Waveform:</b> Pure sinewave <b>Nominal Voltage:</b> 120VAC <b>Voltage Regulation:</b> ±10% on line mode, ±2% on inverter mode <b>Power at 50°C:</b> 1100W/VA <b>Frequency:</b> Output frequency = Input frequency <b>Frequency Tolerance, Backup Mode:</b> ±0.3 Hz
<b>230VAC Model</b>	
<b>Battery:</b>	<b>String Voltage:</b> 48VDC <b>Battery Breaker Rating:</b> 50A <b>Maximum Charging Current:</b> 15A
<b>Input:</b>	<b>Nominal Voltage:</b> 210/220/230/240VAC <b>Voltage Range:</b> 153 to 322VAC <b>Frequency:</b> Nominal: 50Hz or 60Hz (Autodetect Frequency is the default configuration, can also be manually configured.) ±5% <b>Current:</b> 8A (@ Nominal voltage and max battery charging current) <b>Input Breaker Rating:</b> 10A
<b>Output:</b>	<b>Waveform:</b> Pure sinewave <b>Nominal voltage:</b> 210/220/230/240VAC (same as input) <b>Voltage regulation:</b> ±10% on line mode, ±2% on inverter mode <b>Power at 55°C:</b> 1100 @220/230/240V <b>Frequency:</b> Output frequency = Input frequency <b>Frequency Tolerance:</b> Backup Mode: ±0.3 Hz
<b>Communication Interface</b>	
<b>Protocol:</b>	<b>SNMP:</b> SNMP v3 via Ethernet. Compatible with subscription and discovery services <b>TCP/IP:</b> IPv4 or IPv6 <b>Email:</b> SMTP via Ethernet
<b>Security:</b>	<b>Password:</b> 256-bit Encryption <b>Secured Web Interface:</b> SSL for HTTPS
<b>Display:</b>	Full graphic LCD, 480x272 pixels, Resistive touch screen
<b>Ports:</b>	<ul style="list-style-type: none"> <li>• 2 x RJ45: Ethernet</li> <li>• 1 x RJ11: Battery Temperature Compensation</li> <li>• 1 x RJ12: for Alpha CAN devices</li> <li>• 1 x USB-A: For upgrades or file management via a standard USB flash drive</li> <li>• 1 x USB-Mini B: For soft shutdown using MegaTec protocol compliant client</li> </ul>
<b>Indicators:</b>	<ul style="list-style-type: none"> <li>• Solid Green: Line Mode,</li> <li>• Flashing Green: Inverter mode</li> <li>• Yellow/Amber: Minor alarms</li> <li>• Red: Major/Critical alarms</li> </ul>
<b>Dry Contacts:</b>	Programmable NO/NC (250VAC, 1A)*, 3 user inputs, ATS
<b>Factory Default:</b>	<ul style="list-style-type: none"> <li>• C1: On Battery</li> <li>• C2, C3: Low Battery + No Line</li> <li>• C4: Load Shed Timer 1</li> <li>• C5: Alarm</li> <li>• C6*: 48VDC @ 500mA</li> <li>• C7: User Inputs                             <ul style="list-style-type: none"> <li>• S1: Self test</li> <li>• S2: User Input</li> <li>• S3: Shutdown(EPO)</li> </ul> </li> <li>• C8: ATS (48VDC @ 10mA)</li> </ul>
* C6 is factory configurable only	

Mechanical		
<b>Dimensions:</b>	<b>mm:</b> 133H x 394W x 222D <b>inches:</b> 5.22H x 15.5W x 8.75D	
<b>Weight:</b>	14kg/31lbs	
<b>Environmental</b>		
<b>Operating Temp Range*:</b>	-40 to 74°C (-40 to 165°F)	
<b>Humidity:</b>	Up to 95% (non condensing)	
<b>Altitude (m/ft):</b>	Up to 3700 (12,000)**	
<b>Audible noise @ 25°C***:</b>	45dBa @ 1 meter (39in)	
<b>MTBF (hours):</b>	250K + as per Telcordia SR-332, 100% duty cycle, full load, @ 40°C	
<b>BTU/Hr:</b>	<b>Normal mode:</b> <b>120VAC Model:</b> 18Watts/61.42BTU/HR <b>230VAC Model:</b> 30Watts/102.36BTU/HR	
	<b>Backup mode:</b> <b>120VAC Model:</b> 187.56Watts/640BTU/HR <b>230VAC Model:</b> 197.82Watts/675BTU/HR	
*120VAC module derates after 50°C (122°F). 230VAC module derates after 55°C (131°F) @220/230/240V. Derates 1.4% per °C past listed temperature range until a maximum of 74°C. Refer to manual for non listed voltage settings. **Derates 2°C per 300m (1000ft) above 1400m (4500ft) *** Measured at 25°C ambient temperature		
<b>Performance</b>		
<b>Typical Output Voltage THD (resistive load):</b>	<b>120VAC Model:</b> <3% <b>230VAC Model:</b> <3.5%	
<b>Typical Efficiency* (resistive load):</b>	<b>120VAC Model:</b> 98% <b>230VAC Model:</b> 97%	
<b>Typical Transfer Time:</b>	<5ms	
<b>Load Crest Factor:</b>	3:1 (load dependent)	
<b>Lightning/Surge Protection:</b>	ANSI/IEEE C62.41.2-2002, Criteria A & B	
*At nominal AC Input, full load and at 25°C ambient temperature		
<b>Power Connector Options</b>		
<b>120VAC Model</b>		
<b>Input:</b>	<b>Output:</b>	
<b>Standard (0170024-001)</b>	 Terminal Block	 Terminal Block
<b>Optional (0170024-002)</b>	 Terminal Block	 Terminal Block + Dual 5-15R
<b>230VAC Model</b>		
<b>Standard (0170024-101)</b>	 Terminal Block	 Terminal Block
<b>Agency Compliance</b>		
<b>Electrical Safety:</b>	UL 1778, CAN/CSA-C22.2 No. 107.3, EN 62040-1**	
<b>Marks:</b>		
<b>EMC:</b>	CFR Title 47 FCC Part 15 – Class A, ICES-003 – Class A, EN 62040-2 – UPS Category C2**	
<b>RoHS:</b>	Yes	
**Applies to 230VAC version only		

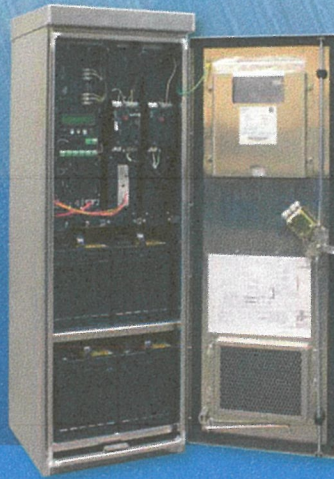


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# SE48-1616

## 48" OUTDOOR TRAFFIC BBS ENCLOSURE



- › Traffic grade aluminum enclosure protects battery backup power systems (BBS) from outdoor elements
- › Various mounting options (including pole-mount) provide a flexible solution for traffic applications
- › Large sun shield reduces solar heat load inside the cabinet
- › Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- › 180° stainless steel piano hinged door with two locking open positions makes internal component installation and maintenance easy and convenient
- › Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security

Consult your Alpha representative for P/N configurations

### MECHANICAL

#### Dimensions:

mm: ..... 1220H x 419W x 419D  
 inches: ..... 48H x 16.5W x 16.5D

**Weight:** ..... 34kg (75lbs)

**Construction:** ..... High strength corrosion resistant aluminum

**Finish:** ..... Natural aluminum

**Equipment Space:** ..... 8RU space (without generator inlet) with two (2) battery shelves

**Equipment Rails:** ..... EIA standard 19" (vertical)

**Cable Entrance:** ..... Bottom of enclosure: 1 x 76mm (3") dia. knock-out

### HARDWARE

**Hinge Type:** ..... Stainless steel piano hinge

**Door Prop:** ..... Aluminum rod, 2 locking open positions

**Handle:** ..... Stainless steel handle with padlock fitting for extended life and improved look

**Door Latch:** ..... 3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

### HVAC

**Cooling:** ..... Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

**Ventilation:** ..... Door installed louvers

### ENVIRONMENTAL

#### Temperature:

Operating: ..... -40 to 46°C (-40 to 115°F)  
 Storage: ..... -40 to 85°C (-40 to 185°F)

### INSTALLATION

**Access:** ..... Removable bottom shelf for easy wiring access

### MAINTENANCE

**Door Installed Louver:** ... Equipped with washable filter

**Other:** ..... Bug screen protected top vent

### ENCLOSURE OPTIONS

**Mounting:** ..... Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets  
 Ground mount kit (optional)  
 Pole mount kit (optional)

### SYSTEM SPECIFICATIONS (AS SHOWN)

- 2 Battery shelf with 4x AlphaCell 220GXL batteries
- FXM1100 UPS
- Universal automatic transfer switch
- Universal generator transfer switch

#### System Options

- Generator support: locking generator access door and L5-30 F1 plug
- Tamper switch
- Tilt switch
- AlphaGuard™ battery balancer
- Door activated interior light
- Battery heater mats
- "On Battery" indicator light

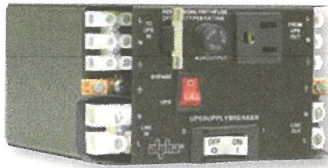
### AGENCY COMPLIANCE

**CSA/UL, CE:** UL50E/C22.2 No.94

**NEMA Rating:** 3R

# ALPHA TRANSFER SWITCHES

## OUTDOOR SOLUTIONS



Automatic Transfer Switch

### UATS

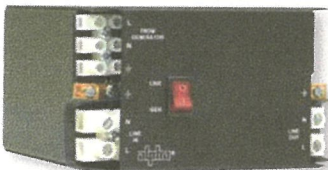
- >120V/30A
- >230V/16A

Alpha's Universal Automatic Transfer Switch is designed as a three stage bypass switch that allows for the UPS to be bypassed and still maintain the ability to keep batteries fully charged.

It acts as a fail-safe device by switching the critical load to the utility line should a fault occur in the UPS. The UATS ensures that clean power is always provided to the critical load, ensuring that your mission-critical equipment always remains running in the event of an outage. This transfer switch also includes a standard manual bypass switch which eliminates costly equipment downtime while servicing the UPS or replacing the batteries.

**Dimensions:** mm: 81H x 135W x 152D  
inches: 3.25H x 5.3W x 6.0D

**Mounting options:** Wall, shelf or single side rack mount



Automatic Generator Transfer Switch

### UGTS

- >120V/30A
- >230V/16A

Alpha's Universal Automatic Generator Transfer Switch automatically transfers the input to the UPS from the utility line to a portable AC generator.

The UGTS allows the generator to recharge the batteries and ensure your mission - critical equipment remains in operation during extended power outages. For manually connecting or disconnecting a generator, a standard switch is included.

**Dimensions:** mm: 81H x 135W x 152D  
inches: 3.25H x 5.3W x 6.0D

**Mounting options:** Wall, shelf or single side rack mount



Alpha Maintenance Bypass Switch

### ALPHA MAINTENANCE BYPASS SWITCH

- >120V
- >230V OPTION NOT AVAILABLE

Alpha's Maintenance Bypass Switch allows the user to manually bypass the UPS system to safely perform service or routine maintenance.

When working in conjunction with the Alpha U-ATS, the manual-only maintenance bypass switch can be installed into the traffic controller cabinet, allowing for the complete UPS system to be bypassed for safe emergency replacement.

**Dimensions:** mm: 117H x 120.6W x 165D  
inches: 4.6H x 4.75W x 6.5D

**Mounting options:** Wall, 4 point shelf mount or single side rack mount



Rack Mount Options

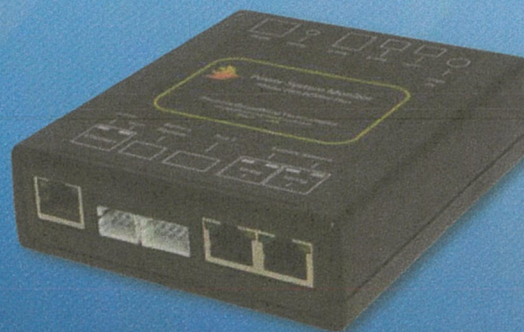
### OTHER MOUNTING OPTIONS

- >RACK MOUNT KIT 2RU - 19 OR 23"

Can be configured with U-ATS, U-GTS, surge option and/or receptacle plate for heating mats.



# REMOTE BATTERY MONITORING SYSTEM PLUS



## REAL-TIME MEASUREMENT AND CONTROL

- › Compact, intelligent and cost effective system for determining battery condition remotely
- › Monitors each individual 12V battery via a user programmable schedule, from hourly to monthly
- › Intelligent battery balancing extends the life of the battery string and reduces maintenance costs
- › Automatic data logging function records individual battery voltage, temperature and admittance
- › Enables the scheduling and budgeting of battery replacements
- › Built-in web server allows for convenient read-only monitoring from any internet-connected computer

**48Vdc 1 String: 0370260-002**  
**48Vdc 2 Strings: 0370260-003**

### ELECTRICAL

#### Site Controller Unit:

Voltage: .....21– 59Vdc  
 Power consumption: ..... 7W  
 NOTE: Power is supplied from the battery bank

#### Sensors:

Voltage: ..... 12V: 8.0 – 16Vdc  
 Power consumption: ..... 12V: <10mA nominal, 0.5/6A during admittance test

### MECHANICAL

#### Site Controller Unit:

Dimensions:  
 mm: .....32H x 104.15W x 120.15D  
 inches: ..... 1.26H x 4.1W x 4.73D  
 Weight: .....0.242kg (0.53lbs)

#### Sensors (12V)

- Two-wire connection with max bolt size for terminals of 5/16 inch
- Mounted to the top of the battery with self-adhesive industrial Velcro strip
- CAT5 cable used to daisy chain from sensor to sensor
- Last sensor in the daisy chain connects to String 1 for the first battery string
- Last sensor in the daisy chain connects to String 2 for the second battery string

#### Power Harness Cable Connection

- Connects to the 48Vdc battery string + (Red) and – (Black) terminals

### ENVIRONMENTAL

**Operating Temperature:** -40 to 80°C (-40 to 176°F)

### COMMUNICATIONS

#### Site Controller Unit

- SNMP via TCP/IP & built-in web server and SMTP mail client

#### Site Controller Software

- Optional Lookout software provides a convenient way to monitor multiple site controllers on the network

### OPTIONAL ACCESSORIES

AC Output Current Sensor	P/N: 7400583
Moisture Sensor	P/N: 7400162
120V AC wall transformer, for monitoring utility power voltage	P/N: 0180059
Two wire sensor, High Current*	P/N: 0180055
Battery cable to power RBMS Controller*	P/N: 8701040

\*Included with 0370260-002/003 kit

# ALPHACELL™ XTV



## AGM TOP-TERMINAL BATTERY

- Extreme temperature Absorbed Glass Mat (AGM) technology
- Significant improvement in cold temperature performance over GEL
- Longer runtimes help increase network availability
- Multiple models provide options for all network architectures
- Power density gains allow more runtime from smaller sized battery
- Extended service life for non-temperature controlled outdoor enclosures
- Full 5-year replacement warranty\*

NOMINAL SPECIFICATIONS										
Model	100XTV		150XTV		195XTV		240XTV			
P/N	1810226		1810227		1810228		1810229			
Warranty	5-year full replacement*		5-year full replacement*		5-year full replacement*		5-year full replacement*			
Operating Temperature Range (w/ Temperature Compensation)	-40 to 60°C (-40 to 140°F) (charger temperature compensation @ ±3.3mVpc per °C)									
Storage Temperature	-10 to 40°C (14 to 104°F)		-10 to 40°C (14 to 104°F)		-10 to 40°C (14 to 104°F)		-10 to 40°C (14 to 104°F)			
Self Discharge	Battery can be stored up to 12 months at 25°C (77°F). Higher temperatures during storage will require more frequent recharge.									
Voltage Per Unit	12V		12V		12V		12V			
Float Charge Voltage	13.5 to 13.8Vdc average per 12V unit at 25°C (77°F)									
Refresh/Boost Charging Voltage	14.4 to 15.0Vdc average per 12V unit at 25°C (77°F)									
Maximum AC Ripple (Charger)	0.5% RMS or 1.5% of float recommended for best results. Maximum voltage allowed = 4% P/P									
Terminal Type	Threaded alloy insert terminal to accept M6 x 12mm bolt		Threaded alloy insert terminal to accept M6 x 20mm bolt							
Terminal Hardware Torque	13.6NM / 120in-lbs		13.6NM / 120in-lbs		13.6NM / 120in-lbs		13.6NM / 120in-lbs		13.6NM / 120in-lbs	
Case Sizes	22NF		24		27		31			
MECHANICAL										
Dimensions w/ Terminals	mm	207H x 228L x 138W		214H x 275L x 168W		214H x 322L x 169W		217H x 343L x 170W		
	inches	8.17H x 9.01L x 5.46W		8.44H x 10.85L x 6.65W		8.43H x 12.71L x 6.67W		8.57H x 13.50L x 6.71W		
Weight	17.7kg (39lbs)		25.4kg (56lbs)		30.5kg (67lbs)		32kg (75lbs)			
BATTERY										
Runtime Rating 25A (@ 25°C/77°F to 1.75Vpc)	100 minutes		150 minutes		195 minutes		240 minutes			
Amp Hour Capacity 20Hr Rate (@ 25°C/77°F to 1.75Vpc)	56Ah		80Ah		100Ah		112Ah			
Conductance Range Fully Charged New Battery (@ 25°C/77°F)	700 - 800		900 - 1100		1050 - 1250		1250 - 1550			
CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F)										
Hours	1	2	3	4	5	6	8	10	12	20
100XTV	39.4	22.1	15.8	12.4	10.3	8.7	6.7	5.4	4.6	2.8
150XTV	53.0	30.6	21.6	16.8	13.9	11.9	9.3	7.7	6.5	4.0
195XTV	65.5	37.0	20.9	21.0	17.3	14.7	11.3	9.4	7.9	5.0
230XTV	81.7	45.5	32.1	25	19.8	16.6	13	10.5	9	5.6

\*Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. Consult your salesperson or manual for details.