### **Phantom Gateway 2.0 Firmware Version 62**

To load FW version 62 on a gateway with Internet access, use the **Check Online Update** button in the System Tools tab of the Gateway Admin Console.

CHECK ONLINE UPDATE
Firmware file
UPDATE

For manual firmware updates, the Firmware file may be downloaded from this URL:

https://pfw.erbessd-instruments.com/gwupdate-62.bin

#### NOTE - Subordinate Gateways should be updated first and the Main Gateway last.

Access each Sub GW through the Admin interface Link on the Repeater Tab of the Admin Console:



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### **New features/functionality**

#### **Admin Console Config Menu**

A new **Config** tab has been added to the Main Gateway Admin Console page:

= 🕌 El Phantom (	(589245253)
Live state	589245253
Config	Gateway Serial Number: 589245253 Version: 58BT310S22
Phantom Sync	Date/Time: 3/6/2025, 1:48:16 PM
System tools	Total memory: 498 Mb / Free: 391 Mb System Temperature: 31° C / BT: 30° C
Offline storage	Storage total: 28190 Mb Free: 28190 Mb CPU Load: 8%
Security	Cable connection IP: 192.168.0.7 Sensors: 10 Paired: 10
About	

Tabs that were previously located on the Main menu have been moved here. Multiple parameters may now be changed and applied with ONE reset of the Gateway software.

≡ 🕍 El Phantom (589245253)					
Live state	GENERAL	COLLECTION	EI ANALYTIC	MODBUS	матт
Config	Enable WiFi				

The General tab is opened by default. Tabs for the following have been moved:

- Collection -Global settings
- EI-Analytic
- Modbus
- MQTT

Changes can be made on multiple tabs and then saved at once.

SAVE	RESET

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#### **Proxy Server Support**

A proxy server may now be administered in the **General** Tab of the **Config** menu. A Proxy server can provide a single point of contact for all Internet-bound Phantom Gateway traffic. Proxy servers provide improved security by managing all web traffic (filters, Firewalls), relaying bidirectional data between source and destination.

All Phantom Gateway data forwarded to EI Analytic will be sent to the Proxy, which relays it to the EI-Analytic website. The Proxy will also support connections to the remote access server (used for logging into a gateway from EI -Analytic).

Enter the Proxy server URL, the TCP port used, and optionally a Proxy User name and password.

Gateways use the CONNECT method for establishing communication with a Proxy. This method requests that a Proxy establish a HTTP tunnel to a destination server, and if successful, forward data in both directions until the tunnel is closed. For details see: <u>https://developer.mozilla.org/en-</u> US/docs/Web/HTTP/Methods/CONNECT

Testing was conducted using SQUID ( a web caching proxy) see <a href="https://www.squid-cache.org/">https://www.squid-cache.org/</a>



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#### **Rename RMS Alarm to RMS Trigger**

The **Velocity RMS Alarms** section of the Sensor Collection Settings has been renamed to **Velocity RMS trigger** to more accurately describe its function and avoid confusion with *Alarms* which are thresholds used to determine the colors shown in the database tree in Digivibe, EI-Analytic or the Wiser Vibe app.

Sensor collection settings	
Timed collection	~
External Triggered collection	~
Velocity RMS trigger	~
Custom collection settings	~
Speed sensor link	~
Misc	~
Extended Edge Metrics	~
c	ANCEL SET

#### **RMS Velocity trigger limit Increase**

The value administered in the RMS Velocity trigger level 1 and level 2 fields of a Phantom vibration sensor may now bet set to a maximum of 200 mm/second.

Serial: 189301939	ersion: 188	
Type: Triaxial Vibra	on (High range)	× -z
Last seen:	0 seconds	
Velocity RMS X:	0.18 mm/s	
Velocity RMS Y:	0.36 mm/s	
Velocity RMS Z:	0.19 mm/s	
Battery voltage:	2.77 V	
Sensor Temperatu	e: 21 °C	
UNPAIR		~

	ion settings		
imed collection			~
xternal Triggered	collection		~
elocity RMS trigg	er		^
RMS trigger lev	vel 1 (mm/s) Axis Y 200	Axis Z 200	y)
200		200	
Enable RMS	triager Level 2 (triagers n	otification)	·
<ul> <li>Enable RMS</li> <li>RMS trigger lev</li> </ul>	trigger Level 2 (triggers n	otification)	
Enable RMS RMS trigger lev Axis X	rigger Level 2 (triggers n vel 2 (mm/s) Axis Y	otification)	
<ul> <li>Enable RMS</li> <li>RMS trigger lev</li> <li>Axis X</li> <li>200</li> </ul>	rigger Level 2 (triggers n vel 2 (mm/s) Axis Y 200	Axis Z 200	:
Enable RMS     RMS trigger lev     Axis X     200     Mode	rigger Level 2 (triggers n vel 2 (mm/s) Axis Y 200	Axis Z 200	:
Enable RMS     RMS trigger lev     Axis X     200     Mode     Collect triggeri	rigger Level 2 (triggers n rel 2 (mm/s) Axis Y 200	Axis Z 200	:
<ul> <li>Enable RMS</li> <li>RMS trigger lev</li> <li>Axis X</li> <li>200</li> <li>Mode</li> <li>Collect triggeri</li> </ul>	rigger Level 2 (triggers n vel 2 (mm/s) Axis Y 200	Axis Z 200	:
Enable RMS     RMS trigger lev     Axis X     200     Mode     Collect triggeri     Alarm count thresho	rigger Level 2 (triggers n rel 2 (mm/s) Axis Y 200 ng data	Axis Z 200	:
Enable RMS     RMS trigger lev     Axis X     200     Mode     Collect triggeri     Alarm count thresho     1	rigger Level 2 (triggers n vel 2 (mm/s) Axis Y 200 ng data	Axis Z	¢
Enable RMS     Enable RMS     RMS trigger lev     Axis X     200     Mode     Collect triggerii     Alarm count thresho     1     Time to ignore trigg	trigger Level 2 (triggers n vel 2 (mm/s) Axis Y 200 ng data er after collection	Axis Z 200	¢

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#### The **Mode** field determines whether to use the original data that caused the trigger (RMS), or take new data:

elocity RMS trigger		^	
Enable RMS trigger Level 1 (trigger w	aveform collection	n only)	
Enable RMS trigger Level 2 (triggers	notification)		Mode
Mode			Collect triggering data
Collect new data with full settings			Collect new data with full settings
Alarm count threshold			
1		counts	
Time to ignore trigger after collection			
12 H	lours	· ·	

**NOTE** - Please ensure the **Mode** setting is changed from default to **Collect new data with full settings** if you want to trigger a waveform collection. **Collect triggering data** will only relay the original RMS reading that caused a Level 1 trigger!

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### **New Sensor Firmware for Triaxial Phantoms**

Firmware version 190 is now available for V10 and V11 Phantom sensors.

Once FW62 is loaded, each sensor can be updated using the **Update** button in the Live State screen:

Type: Triaxial Vibration (High range)			
Last seen:	0 seconds		
Velocity RMS X:	0.14 mm/s		
Velocity RMS Y:	0.38 mm/s		
Velocity RMS Z:	0.15 mm/s		
Battery voltage:	2.73 V		
Sensor Temperat	ure: 20.5 °C		

#### ±64g support for new V11 Phantoms

Newer model sensors are now shipping and have support for ±64g of acceleration.

#### **New Sensor Firmware for Specialty Phantoms**

Firmware versions for <u>new</u> Phantom sensors equipped with AA batteries are included in Gateway Firmware 62.

- EPH-S40 Speed
- EPH-C31 Current
- EPH-T25 Temperature
- EPH-G60 2VPP
- EPH-G61 4-20mA GPIO
- EPH-G62 Dry Contact
- EPH-G63 0-10 Volt GPIO
- EPH-T70 Thermal Camera

Serial: 189250019	version: 108		
Type: Dry contacts			10
Last seen:	2 seconds		
Battery voltage:	3.38 V		
Sensor Temperatu	Ire: 26.75 °C		
Channel 1:	Open		
Channel 2:	Open		
Channel 3:	Open		
Channel 4:	Open		

**NOTE** - The Live state screen will show <u>all</u> existing Specialty sensors as eligible for an update. It is <u>not</u> necessary to update any existing Phantom sensor that uses AAA batteries or a wired power source. However, if the update is applied to such a sensor, it will have no impact on its operation.

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### **Trigger from Phantom GPIO Sensors**

The Phantom triggering feature has been enhanced to add the GPIO (EPH-G61 4-20mA and EPH-G63 0-10V) sensors to the list of Phantoms that can be used to trigger a vibration sensor (EPH-V11E or V10E) or an EPH-T70 Thermographic camera.

Sen	sor collection settings	
Tin	ned collection	~
Ext	ernal Triggered collection	^
	Trigger collection type	-
	None	
Ve	Current (EPH-C31)	
Cu	RPM (EPH-S40)	
Sp	Dry contact (EPH-G62)	
Mi	Voltage (EPH-G63)	_
	4-20ma (EPH-G61)	_

Example of a sensor setting when a 4-20 mA sensor is used to trigger:

- 1. Select 4-20ma from the **Type** field
- 2. Pick the triggering sensor serial number from the list of available Phantoms
- 3. Set the **Time to ignore trigger after collection** value. This sets an interval between triggered events. Once the timer has elapsed, and the Min/Max conditions are met, a new trigger will occur.
- 4. Set Min and Max Current to define the range in which it must fall to cause a trigger event.
- 5. Press **SET** to save changes.

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Se	ensor collection settings		
Т	imed collection		$\sim$
E	xternal Triggered collection		^
	Trigger collection type 4-20ma (EPH-G61)		*
	Triggering Sensor 189263114		<b>.</b>
	Time to ignore trigger after collection 1	Minutes	▼
	Channel 1		▼
	Min current 6		mA
	Max current 15		mA

#### Example for 0-10 Volt Phantom:

ensor collection settings		
imed collection		~
xternal Triggered collection		^
Trigger collection type		
Voltage (EPH-G63)		*
Triggering Sensor		
189266009		*
Time to ignore trigger after collection		
1	Minutes	-
Channel		
1		-
Min voltage		
3		V
Max voltage		
7		\$ <b>\</b>

**Note** – A Triggered collection setting is <u>independent</u> of the normal **Timed collection** setting for a V10/V11/T70 sensor. If regular Timed collections are <u>not</u> desired, set the Timed collection to **disabled**. Only triggered collections will then be be provided.

Tim	ed collection	^
С	oliection mode	-
	Follow global collection setting	
C	Interval	
	Time of the day	
Cı 10	Disable timed collection on this sensor	

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#### **New Firmware for EPH-T20 IR Temp Phantom**

A new firmware version is available for this sensor to include the ability to administer the **emissivity** setting from the Gateway Admin Console. Previously, this was only possible by using the Phantom Manager mobile App.

Enter a value between 0.1 and 1.0, depending on the type of material to be measured.

In sensor settings		
General		~
Infrared Thermometer		^
Emissivity 0.8		0
	CANCEL	SET



Material	Emissivity
Polished silver	0.02
Polished copper	0.03
Polished gold	0.03
Aluminum foil	0.07
Wood	0.85
Asphalt pavement	0.9
White paint	0.9
Vegetation	0.94
White paper	0.94
Water	0.95
Black paint	0.98

PN: EPH-T70 70-EINTCS-123456789 CONTAINS FCC ID: X8WRTR40

### New Firmware for EPH-T70 Thermographic Camera

A new firmware version (112) is available for this sensor to add the ability to administer the **emissivity** setting from the Gateway Admin Console. Previously, this was only possible by using the Phantom Manager mobile App.

**Emissivity** - Enter a value between 0.1 and 1.0, depending on the type of material to be measured (defaults to 1).

Frames - the number of Frames from 1 to 16 can also be selected (default 1).

Serial: 189275016 version: 112 Type: Thermographic Camera	ER Pha	BESSD INSTRUMENT ntom Thermographic Camera Description
Sensor collection settings Timed collection	~	
External Triggered collection	~	
Thermal camera collection settings	^	
Frames 1	•	
Emissivity .98		
	CANCEL SET	

### **OPC UA Changes**

- 1. The OPC UA feature now supports User logins instead of an Anonymous login. Multiple Users may now be administered for OPC UA access in the General Tab of the Config Menu.
- 2. Unencrypted communication can also be disabled.
- 3. The option to override the Gateway Host name is now available. Suggested alternate hostname is "PhantomGW-gwserialnumber" and the ip address of the gateway.
- 4. Expose <u>friendlyName</u> and <u>isPaired</u> in OPC UA.

✓ Enable OPC UA Server (port 4334)
Disable OPC UA Anonymous login
Disable OPC UA unencrypted communication
Export only paired sensors
Override OPC hostname
Host name Phantom_GW_589247123_192.168.0.7
Username
ADD USER

#### Click ADD USER to administer OPC UA Users and passwords:



### Send Thermal Image over MQTT

Currently, the RMS data, sensor status data and full time waveform data can be shared with MQTT brokers. Firmware 62 introduces the ability to also share thermal image data over MQTT. These files are generated by either an EPH-T20 or EPH-T70 Infrared Phantom camera. A nested array that contains the temperature values measured in Celsius for each pixel of the frame is sent. This example T70 camera capture shows the 24 by 32 pixel array :



The following is an abbreviated example of how the temperature data for each pixel is sent via MQTT:

```
"serialNumber": 189275207,
"gwSerial": 599245013,
"type": 10,
"dataType": "collection",
"data": [
[
22.15,
22.46,
22.68,
22.71,
```

{

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],
]
],
"columns": 24,
"rows": 32,
"frames": 1,
"frameRate": 1

#### }

#### **Send Alarm Info to MQTT**

Phantom Sensor RMS Velocity trigger status information is now available to be shared via MQTT protocol.

### **Administer Client ID for MQTT**

The ability to change the Client ID has been added.

iiiqu.//		
port		
1883		
Username		
Password		
Publish Topic		
	-+	alaumar')

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