

1. Overview:

The E-MAAX USI (User System Interface) provides both a graphical and tabular display of the performance parameters of the E-MAAX series of regulators. Each regulator type (CSR / PRO / PLUS) has its specific parameter access package based on the regulator type and the sensors that are connected.

The USI allows the following parameters can be modified by the user;

- Battery chemistry
- Charging set-points
- System voltage
- Battery bank capacity
- Tachometer ratio
- Alternator number of poles

Supplied as a utility program to be installed on a PC, the program has read-write capabilities as well as a real-time system display. The USI system is intended for single or twin engine having one or two alternators per engine.

The USI also functions as a remote technical support interface, allowing *ElectroMaax* personnel to observe / modify system operating conditions in real-time. The USI has "read only" capabilities when connected via "Bluetooth" (refer to "datasheet - Com Module PLUS" for additional information).

2. Installation:

The **EMAX-USI.exe** program can be installed in any directory / folder (e.g. - Desktop). Depending on the regulator type (CSR / PRO / PLUS) a corresponding Com Module is required. Refer to the table below: "**System Sensor Compatibility**" to confirm the required Com Module. A USB connection from a PC to the *Com Module* or *Com Module PLUS* provides the data transfer.

A two regulator PLUS system requires the *Com Module PLUS* be connected to a *Battery Hub PLUS* (refer to "datasheet - Battery Hub PLUS") which in turn connects to the regulators.

3. Operation:

1. Connect the USB cable from the Com Module PLUS to the PC
2. Launch (double click) USI.exe, the main graphical display will show the connected sensor in both digital and analog format.
3. The following parameters are displayed in the graphical screen;
 - System Voltage
 - Regulator Temperature (F or C)
 - Battery Temperature (F or C)
 - Alternator Temperature (F or C)
 - Field Output %
 - Charging Stage
 - Ignition Status
 - Field Reduction Switch Status
 - Critical Fault Status
 - Setting Fault Status
 - Battery Current
 - Alternator Current
 - Battery Voltage
 - Engine RPM
 - Battery State of Charge (SOC)

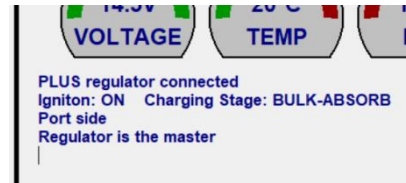
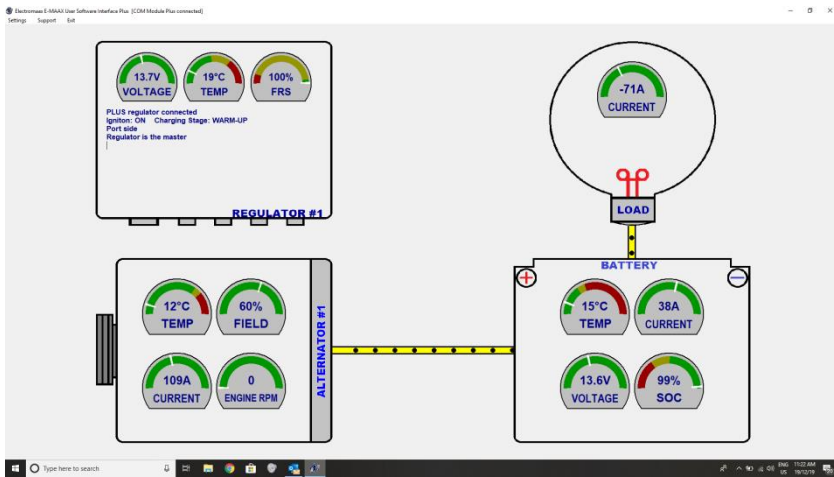
System Display Capability				
	CSR	PRO-N	PRO	PLUS
• System Voltage	✓	✓	✓	✓
• Regulator Temperature	✓	✓	✓	✓
• Battery Temperature (F or C)	✓	✓	✓	✓
• Alternator Temperature (F or C)	✓	✓	✓	✓
• Field Output %	✓	✓	✓	✓
• Charging Stage		✓	✓	✓
• Ignition Status		✓	✓	✓
• Field Reduction Switch Status	✓	✓	✓	✓
• Critical Fault Status	✓	✓	✓	✓
• Setting Fault Status	✓	✓	✓	✓
• Battery Current		✓	✓	✓
• Alternator Current		✓	✓	✓
• Battery Voltage	✓	✓	✓	✓
• Engine RPM		✓	✓	✓
• Battery State of Charge (SOC)		✓	✓	✓

System Sensor Compatibility				
	CSR	PRO-N	PRO	PLUS
Alternator Temp Sensor	✓	✓	✓	✓
Alternator Current Sensor		✓	✓	✓
Battery Sensor Hub		✓		
Battery Temp Sensor	✓		✓	✓
Battery Current Sensor			✓	✓
Battery Voltage			✓	✓
Com Module	✓	✓	✓	✓
Com Module PLUS		✓	✓	✓
Battery Hub PLUS				✓

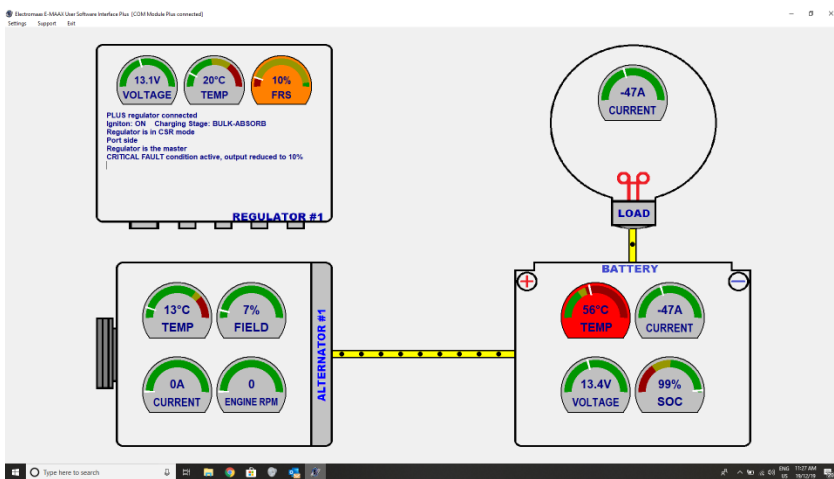
4. Functionality:

Graphical:

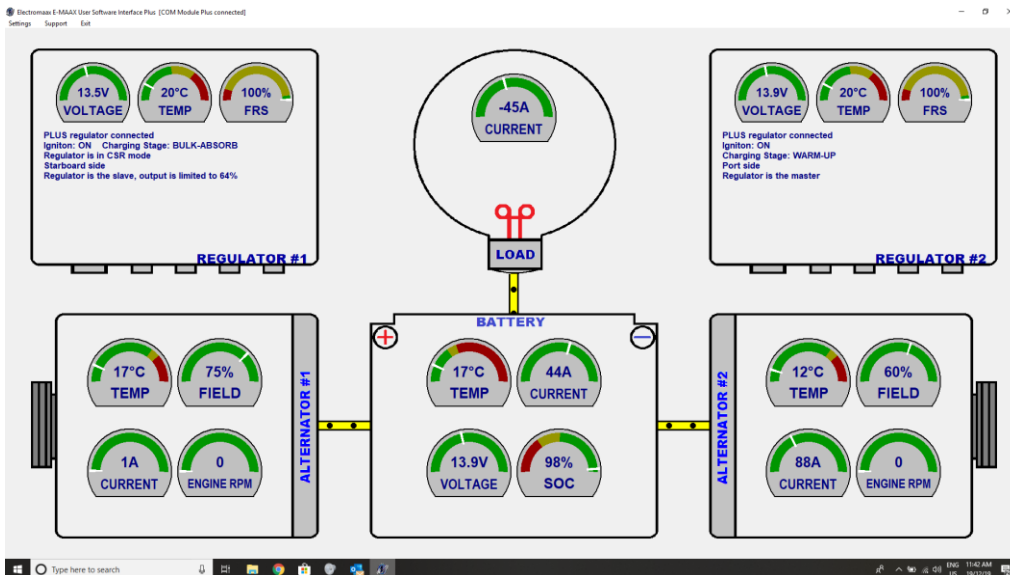
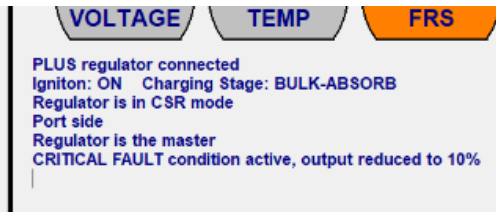
The following screen shots show the various graphical layouts of the charging system based on the regulator type connected. Gauges at each component icon indicate the respective parameter values. The yellow connecting path indicates current flow rate and direction. A status overview and any warning or faults appear in text within the regulator icon.



Dynamic text within regulator icon shows charge status and any warnings or faults



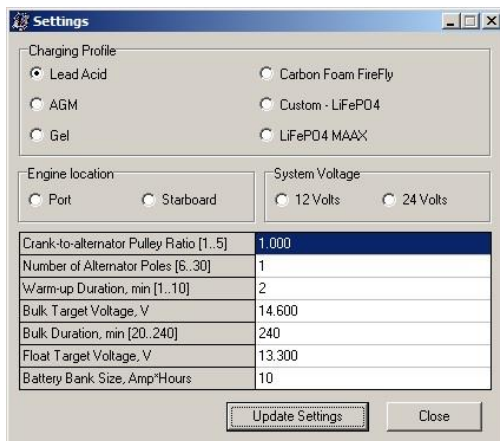
Gauge display will change colours; AMBER for "Half-Field Condition" and RED for "Critical Fault Condition"



In a dual-engine vessel having two PLUS regulators the USI display auto-adjusts to display the additional components

Tabular:

The tabular format can be called via selecting "Settings /Regulator Settings" from the menu bar. The screen allows the user to read / write changes (within confined limits) to the regulator. The regulator right LED displays "red" when writing to the regulator and "blue" when the PC is reading settings from the regulator.



The tachometer output is dependent upon the correct crankshaft pulley to alternator pulley ratio being defined, as well as, the number of alternator poles.

Pulley diameters are measured and the value entered into the field is the crankshaft pulley divided by the alternator pulley.

e.g. - Crankshaft = 100 mm OD

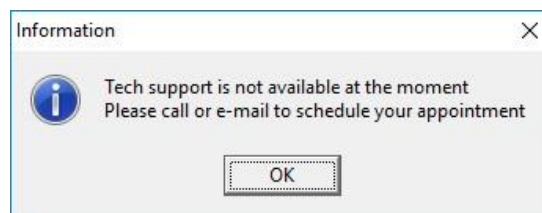
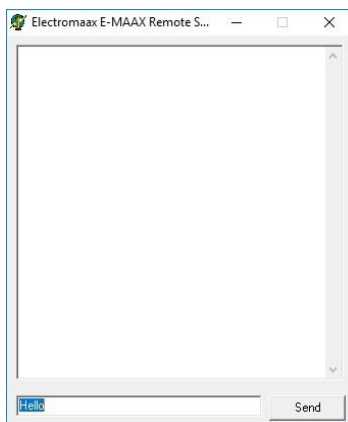
Alternator = 44.6 mm OD

Ratio= 100 / 44.6 = 2.24

All ElectroMaax alternators are 12 poles; consult with your manufacturer to confirm number of poles of your model.

Remote Support:

Internet based remote technical support can be provided via the USI interface; allowing ElectroMaax personnel to observe real-time operating conditions. Remote support can provide setting changes directly to the regulator. A technical support session must be scheduled via e-mail or phone. In the event technical support is unavailable a "not available" window will appear.



5. BlueTooth:

Wireless communication is available to a Windows based PC when the Com Module PLUS (CMP) is not connected via the USB cable. The CMP must be paired and connected and the USI application active. BlueTooth provide "read-only" capabilities.

6. Summary:

The USI interface provides both a comprehensive parameter display and a convenient, valuable tool to support the user in optimizing the E-MAAX series of regulators.