

# iMAC2 Controller: Integrated Monitoring and Control System

## Introducing the iMAC2 Supervisory Controller

Ampcontrol's new iMAC2 Supervisory Controller extends the capabilities of the standard iMAC system, providing additional Ethernet communication and diagnostic functionality whilst maintaining compatibility with all existing iMAC installations.

### Key reasons for upgrading to the iMAC2 Controller:

- 10/100MB RJ45 Ethernet communications port
- Supports Modbus TCP/IP (Read Holding Registers) Protocol
- Planned future support for Ethernet/IP CIP Protocol
- Built-in web server for advanced fieldbus diagnostics and live system data presentation
- Extensive event logging capability with real-time stamping
- Backwards compatible with existing iMAC installations
- Maintains SIL qualifications

Companies who recognise and value real-time data as the means to reducing down time and promoting pro-active maintenance schedules will recognise the value of the new iMAC2 controller. 'Knowledge is Power' and the new iMAC2 controller delivers real time knowledge of the system to the system owner, enabling proactive maintenance to be initiated. Proactive maintenance delivers better 'up-time' results and reliability of the system, which in turn ensures a better bottom line for the owner.



### The Addition of an Ethernet TCP/IP Communications Port

In addition to the standard serial communications port supported by the original iMAC Controller, the iMAC2 Controller also provides an Ethernet TCP/IP port that allows communication with external equipment.

The iMAC2 Controller's Ethernet TCP/IP port allows the iMAC2 Controller to be connected directly to the site's Ethernet network. Computers on the network are then able to access the iMAC2 Controller's web interface to view real-time data and extensive event and data logs.



Figure 1: iMAC supervisory controller's external communications options

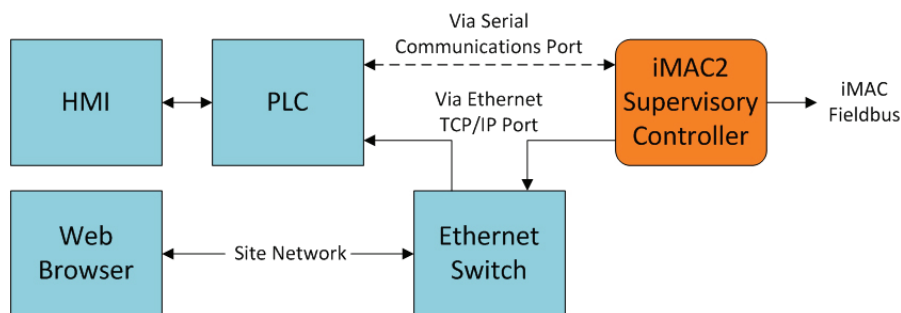


Figure 2: iMAC2 Supervisory Controller's external communications options

### In-Built Event Logging

The iMAC2 Controller has been designed to provide extensive event and data logs for diagnostic purposes. All event and data logs are recorded using the iMAC2 Controller's internal, battery-backed, real-time clock. The clock can be set manually or automatically using Network Time Protocol (NTP).

The iMAC2 Controller logs all

operations of the Controller, including but not limited to: power cycling, relay operation, and Controller temperature. In addition to this, the Controller also monitors and records data for all modules connected to the iMAC fieldbus. Whenever a change occurs in the values of the module's registers, the iMAC2 Controller records the date and time of the change, the previous value, and the new value.

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## Backwards Compatibility with Existing iMAC Installations

The iMAC2 Controller maintains all of the functionality of the original iMAC Controller. This includes the original serial communication functionality and the patented iMAC fieldbus signalling protocol. Due to this, any existing system with an iMAC Controller can be easily upgraded to an iMAC2 system by installing the iMAC2 Controller as a direct replacement for the original iMAC Controller.

## Maintains Existing SIL System Qualifications

The iMAC2 Controller has been developed in such a manner that the SIL “Proven-In-Use” status of the original iMAC Controller has been maintained. This allows the iMAC2 Controller to be installed as a direct replacement into existing SIL rated iMAC systems. An updated proven in use assessment has been conducted taking into account new hardware. The core functional safety software of the original iMAC Controller remains intact and unchanged.

## Advanced Interactive Web Server Interface

The iMAC2 Controller provides an advanced diagnostic tool in the form of an interactive web interface. Any user on the same network as the iMAC2 Controller can access this diagnostic tool by typing the IP address of the Controller into their computer’s web browser.

The web interface provides a host of diagnostic tools, including live graphical loop resistance trends for EOL and MEOL modules, live trending for system shunt resistance, live bar graph resistance readings for all modules connected to the iMAC fieldbus, live data for all connected modules, and a user friendly historical log viewing page.

The web interface can be used as an invaluable maintenance and fault finding tool. Having access to both real time data and logged data will allow system trips to be quickly diagnosed and identified.

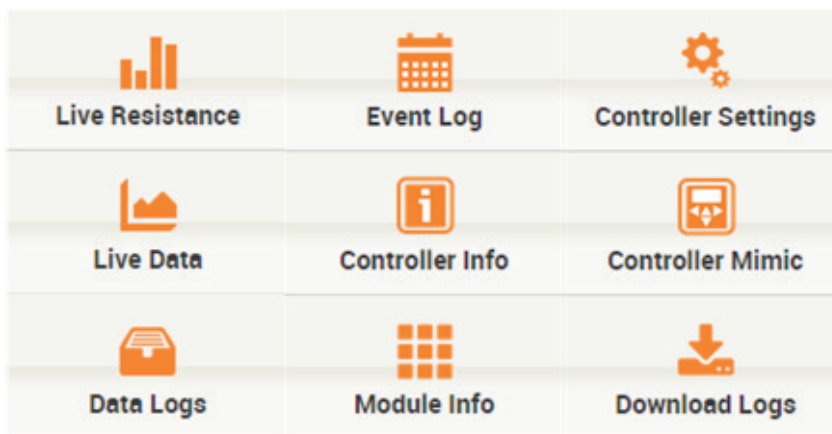


Figure 3: Web interface functionality

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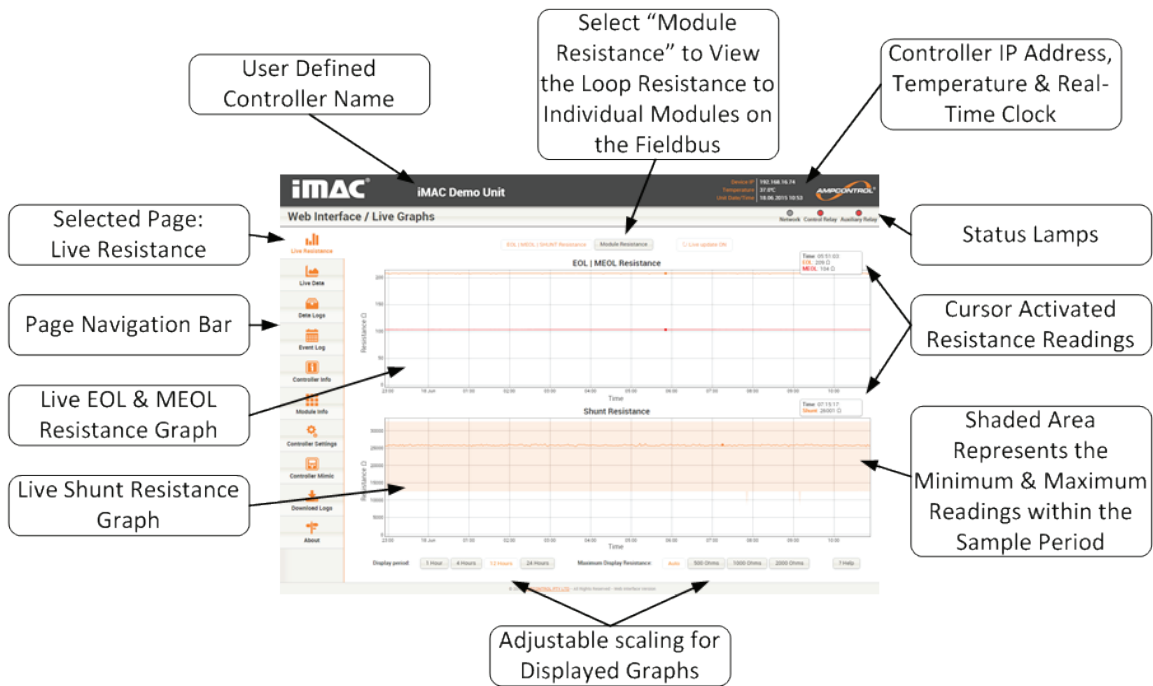


Figure 4: iMAC2 web interface – live resistance page

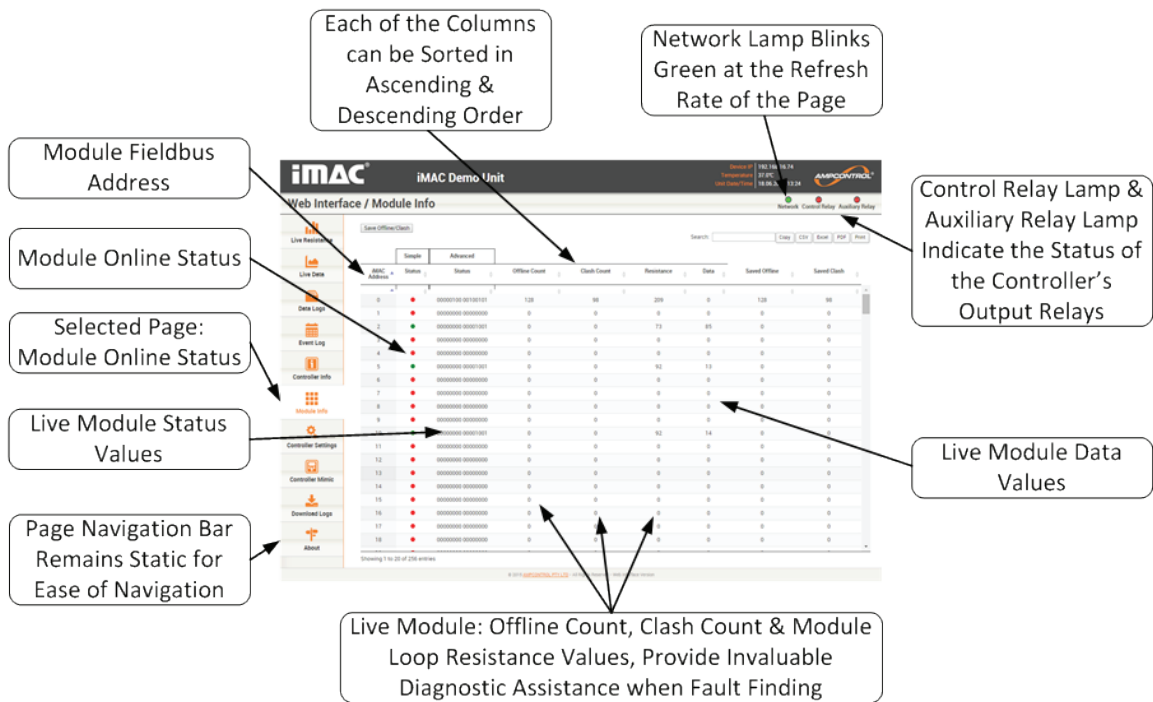


Figure 5: iMAC2 web interface – module info page