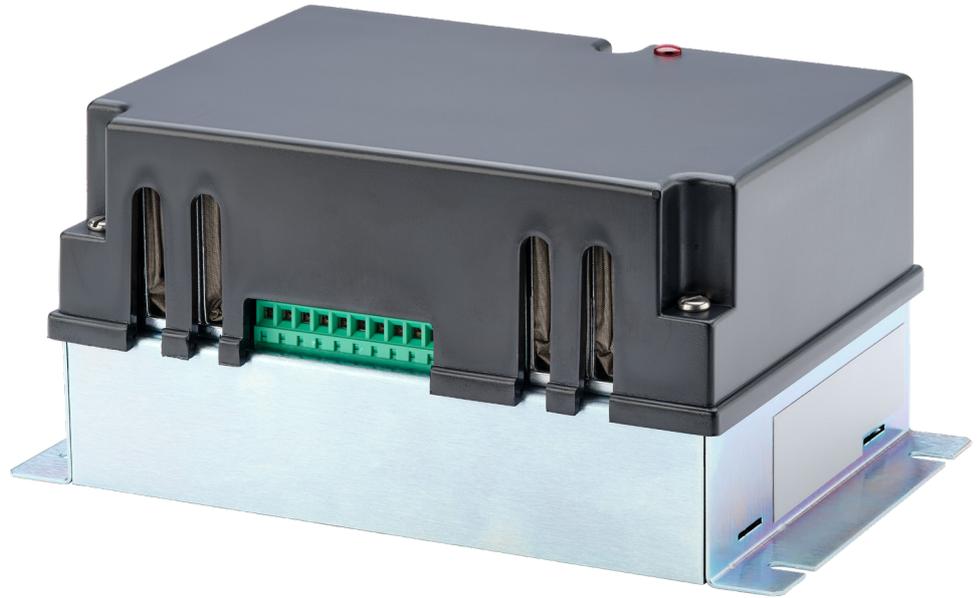




Energy • Technology • Control



ETC6000 Series Burner Control System

ETC6212 Daughter Board

The ETC6212 Daughter Board is a critical expansion module designed to provide comprehensive water level control in industrial burner control systems. Compatible with the ETC6000 Series of Burner control Systems, the ETC6212 enhances operational safety and efficiency by integrating advanced water level and quality control functionalities.

Features:

- **Boiler Drum Level Control:** Supports single, two, and three-element feed-water control strategies.
- **Water Quality Monitoring:** Includes Total Dissolved Solids (TDS) measurement capabilities with optional blow-down control.
- **Enhanced Safety:** Dual 4-20mA inputs for redundant level measurement and safety interlocks.
- **Flexible Integration:** Compatible with various boiler configurations and sensor types.
- **TDS Monitoring:** Direct connection for TDS probes and PT100 temperature sensors.
- **User-Friendly Interface:** Integration with the ETC6000 series touch-screen HMI for intuitive operation.

Benefits:

- **Enhanced Safety:** Relay outputs for high and low water level alarms provide early warning of critical conditions, ensuring safer operation.
- **Precision Control:** Dual 4-20mA level probes and advanced control strategies enable highly accurate water level management, minimising risks of overfilling or running dry.
- **Improved Efficiency:** Automated TDS monitoring and blow-down management reduce manual intervention, optimise system performance, and minimise operational downtime.
- **Versatility:** Wide-ranging power supply compatibility (24-230VAC) and adaptable environmental protection ratings (IP40/IP54) make it suitable for diverse industrial applications.
- **Customisable Control Strategies:** Offers single-, two-, and three-element control options, allowing operators to tailor performance to specific system demands and complexities.
- **Seamless Integration:** Isolated 4-20mA output and dedicated sensor terminals ensure compatibility with existing monitoring and control systems.
- **Robust Durability:** Built to operate reliably across a temperature range of 0°C to 60°C and withstand harsh conditions in indoor or outdoor environments.
- **Operational Cost Savings:** Automated processes reduce labour and maintenance costs, improve resource utilisation, and extend equipment lifespan.
- **Optimised Water Quality:** Continuous TDS monitoring ensures high-quality boiler water, reducing scaling, corrosion, and energy wastage.

The ETC6212 Daughter Board with Water Level Control is a sophisticated solution designed to ensure precise, reliable, and automated management of water levels and boiler water quality in demanding industrial environments. At its core, the system offers dual 4-20mA level probe inputs, which provide highly accurate monitoring of drum water levels, ensuring the system can respond effectively to dynamic conditions. Complementing this, the board is equipped with dedicated terminals for integrating Total Dissolved Solids (TDS) sensors and PT100 temperature sensors, enabling comprehensive monitoring of water quality and thermal conditions. These inputs ensure that the ETC6212 can adapt to a wide variety of industrial setups, maintaining operational integrity even under challenging circumstances.

On the output side, the ETC6212 is engineered to provide robust control and seamless communication with external systems. Its relay outputs are configured to activate alarms for high and low water levels, adding an essential layer of safety to the operation. Furthermore, the inclusion of an isolated 4-20mA output enables the device to integrate smoothly with advanced control systems, providing reliable data transmission and ensuring compatibility with a wide range of supervisory equipment.

The device is highly adaptable, with a wide-ranging power supply requirement of 24-230VAC, allowing it to fit into diverse installations without the need for additional power conversion equipment. It is built to operate reliably within a temperature range of 0°C to 60°C, making it suitable for use in various industrial environments. To enhance durability, the ETC6212 is offered with protection ratings of IP40 for standard indoor use and IP54 for outdoor applications or harsher environments where added resilience is required against dust and moisture.

One of the standout features of the ETC6212 is its support for advanced control strategies, offering flexibility to meet the specific needs of different applications. The single-element control mode provides a straightforward yet effective solution, ideal for systems with stable operating conditions and minimal load variations. For applications requiring a more dynamic response, the two-element control strategy incorporates steam flow rate measurements, significantly improving responsiveness to changes in demand. For the most precise and demanding applications, the three-element control strategy adds feed-water flow measurement, allowing for meticulous regulation of water levels, even in complex and rapidly changing conditions.

In addition to water level control, the ETC6212 excels in boiler water quality management. Its integrated TDS sensor continuously measures Total Dissolved Solids (TDS) in the boiler, ensuring safe and efficient operation and longevity of the boiler. To further enhance operational efficiency, the system automates the blow-down process, a critical maintenance function that removes impurities from the boiler. This automation is highly customisable, with the blow-down cycle triggered by time intervals, measured TDS limits, or the maximum allowable time since the

previous cycle. By taking over this repetitive yet vital task, the ETC6212 reduces the need for manual intervention, decreases maintenance effort, and ensures that boilers operate at peak performance with minimal downtime.

The ETC6212 represents the convergence of precision engineering and advanced automation, offering a comprehensive solution for water level and boiler water quality management. Its versatility, reliability, and adaptability make it an indispensable component for industrial systems requiring robust and efficient control. Whether managing straightforward operations or tackling the challenges of complex, variable environments, the ETC6212 delivers unmatched performance and peace of mind.

The ETC6215 Expansion Module offers a cost-effective and reliable solution for water level control in applications where the full suite of features provided by the ETC6212 is not necessary. Designed for simpler system architectures, the ETC6215 is ideal for installations where operational demands are moderate, budgets are constrained, or where TDS monitoring is already managed by external equipment.

At its core, the ETC6215 includes essential functionality for effective boiler drum level management:

- A single 4–20mA analogue input allows continuous monitoring of drum water levels, ensuring stable control of feedwater supply and boiler protection.
- A series of configurable digital inputs is provided for use with conventional on/off-type level switches, such as conductive probes, enabling straightforward implementation of safety interlocks and water level limit detection.
- Integrated relay outputs support direct control of feedwater pumps and issue alarm signals for high and low-level conditions, enhancing safety and responsiveness.

While the ETC6215 lacks integrated support for Total Dissolved Solids (TDS) measurement and automated blowdown control, these capabilities can be added by fitting the ETC6211 Daughter Board. This optional module provides dedicated inputs for conductivity sensors and PT100 temperature probes, allowing the 6215 to monitor water quality and automate blowdown processes in accordance with TDS levels, time intervals, or a combination of both. When upgraded in this way, the ETC6215 can deliver performance approaching that of the ETC6212, without the need for a complete system replacement.

In terms of integration, the ETC6215 communicates with the ETC6000 series burner controllers via the CANBus network. This ensures real-time data exchange, synchronisation of system logic, and visibility through the standard touch-screen Human-Machine Interface (HMI). All settings, alarm status, and status information are accessed through the familiar HMI environment, using the same option parameter structure as the rest of the ETC6000 product family.

The ETC6215 is particularly well suited to:

- Boiler systems with stable or slowly varying loads
- Sites requiring basic drum level control without complex feedback or feedforward strategies.
- Projects where budget constraints or space limitations make the ETC6212 excessive for the application.
- Retrofit projects or phased upgrades, where basic

For further information on the ETC6212 Daughter Board settings, alarm status, contact ETC today for bespoke solutions tailored to your needs.

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