



## Q2 SERIES: BEYOND COMPLIANCE

Why SIL 3 certification matters  
when EN 298 is just the beginning

## 1. FUNCTIONAL SAFETY IN CRITICAL PROCESSES

In modern industrial combustion, meeting the minimum regulatory baseline is often not enough to protect high-value assets and personnel. While **EN ISO 13577-4 (Method A)** allows for standard EN 298 compliance, the **Q2 Control Series** goes further.

By achieving **SIL 3 certification** via a **Notified Body**, the Q2 provides a level of hardware and software integrity that exceeds standard requirements, making it the ideal choice for **High Demand** applications and high-risk environments.



### KEY TECHNICAL SPECIFICATIONS

FEATURE	SPECIFICATION	BENEFIT
<b>Safety Integrity Level</b>	SIL 3 (certified to EN 61508)	Maximum reliability for critical safety loops.
<b>Assessment Path</b>	EN 13611:2019 Annex J	Specifically validated for burner/furnace safety.
<b>Reliability Metric</b>	PFH (High Demand)	Guaranteed low probability of failure per hour.
<b>Compliance</b>	EN 298 / EN 13611	Full legal compliance with industrial standards.
<b>Systematic Integrity</b>	SC 3 (Software/Firmware)	Robust protection against systematic errors.

### TECHNICAL COMPARISON: EN 298 vs. SIL 3 (EN 61508)

FEATURE	EN 298:2022 (Standard Product)	SIL 3 / EN 61508 (High Integrity)
<b>Primary Focus</b>	Specific performance and safety of automatic burner control systems.	General framework for Functional Safety of electrical/electronic systems.
<b>Method A Status</b>	Covered. Sufficient for standard industrial furnaces under ISO 13577-4.	Exceeds Method A. Required for High Demand or high-risk applications.
<b>Hardware Reliability</b>	Prescriptive design rules (e.g., failsafe behavior on component failure).	Quantified via PFH (Probability of Failure per Hour).
<b>Software Assessment</b>	Prescriptive design rules (e.g., failsafe behavior on component failure).	More rigorous assessment of systematic integrity (V-Model, SC3).
<b>Failure Management</b>	Focuses on safe shutdown upon detection of a single fault.	Requires Diagnostic Coverage > 90/99% and strict Safe Failure Fraction.
<b>Lifecycle Management</b>	Standard quality control during manufacturing.	Documented lifecycle from design to decommissioning.
<b>Insurance Liability</b>	Standard commercial terms	Premium reduction potential demonstrates due diligence.

## 2. Why Choose a SIL 3 Certified Device?

### 2.1. ENGINEERED FOR HIGH DEMAND

Standard burner controls (EN 298) are often designed for "Low Demand" or domestic settings. The Q2 is engineered for industrial environments where safety functions are exercised frequently. SIL 3 certification ensures the device maintains its protective integrity regardless of the operational frequency.

### 2.2. SIMPLIFIED PLANT CERTIFICATION

Process plants designed under IEC 61511 require verified data for every component in the Safety Instrumented Function (SIF). With Q2, your safety engineers can bypass complex calculations. Our third-party certification provides all the necessary PFH/PFD and SFF data required for immediate integration into your safety loop.

### 2.3. ABSOLUTE DIAGNOSTIC COVERAGE

To reach SIL 3, the Q2 features a diagnostic coverage (DC) of > 90 / 99%. This means the device is constantly "self-aware," capable of detecting and reacting to internal faults before they can lead to a dangerous state.

### 2.4. WHY SIL 3 MATTERS FOR YOUR APPLICATION

- Superior Reliability: A SIL 3 rating signifies an extremely low probability of dangerous failure, essential for critical process environments.
- Exceeding Minimum Requirements: It moves beyond the basic "Method A" framework, offering an objective safety guarantee even when not strictly mandated by the standard.
- Seamless Integration: It simplifies the design process for system integrators following IEC 61511, as the component's safety data is already certified and ready for high-level safety loops.

When a customer or colleague asks:

*EN 298 is compliant, why do I need a SIL 3 ?*

consider these three pillars to frame the conversation:

#### 1. The Risk Mitigation

- *EN 298 protects the burner; SIL 3 protects your entire plant investment.*
- EN 298 is a product standard designed for general safety. However, if the process is High Demand (high frequency of operation), the statistical probability of a failure increases. SIL 3 certification provides the mathematical certainty (PFH) that the device will perform even under constant stress, reducing the risk of catastrophic downtime or environmental incidents.

#### 2. The Global Integration

- *SIL 3 is the universal language of modern engineering.*
- Most modern industrial plants are designed according to IEC 61511. If the customer uses a device that is only EN 298 compliant, their safety engineer must manually calculate the reliability data for that component — a time-consuming and expensive process. With the Q2's SIL 3 certificate, it's "plug-and-play" for their safety loop calculations.

#### 3. The Future-Proofing

- *Standards evolve; SIL 3 is already there.*
- Insurance companies and local safety authorities are increasingly demanding higher integrity levels regardless of the minimum legal baseline. Buying a SIL 3 device today prevents a costly "forced upgrade" in 3–5 years when plant safety regulations or insurance requirements tighten.

These three pillars aren't just theoretical benefits. They translate into concrete advantages when your plant faces real-world scrutiny. Consider two practical scenarios:

### SYSTEM INTEGRATION REALITY

Is your safety logic solver (PLC) rated for SIL 3? If so, using a non-SIL rated flame sensor/burner control creates a 'weak link' that de-rates your entire safety loop. The Q2's SIL 3 certification ensures your safety chain integrity remains intact.

### THE AUDIT MOMENT

During an audit or incident, would you prefer to show a standard compliance declaration or a third-party SIL 3 certificate from a Notified Body? One demonstrates minimum compliance; the other proves proactive risk management.

## 3. Quick decision guide

Choose EN 298 (Standard) if:

- Low-demand domestic/light industrial
- Standard furnace application
- No IEC 61511 plant design

Choose SIL 3 (Q2 Series) if:

- High-demand industrial process
- IEC 61511 plant certification required
- High-value assets at risk
- Insurance/audit requirements

Ready to discuss how SIL 3 certification protects your specific application?

Contact our engineering team:

<https://contrive.it/support>

[info@burner-control.com](mailto:info@burner-control.com)

Or download the full Q2 series technical literature and certificates:

[www.burner-control.com](http://www.burner-control.com)



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