

## Ignition Box - EN 298:2012 certified FCE60 for Flame Control and Monitoring

The FCE60 Ignition Box is a certified gas safety component for use in any gas burner system. It controls the ignition of a gas burner and secures a continued safe operation.

The FCE60 controls the gas supply and ignites the gas, and monitors the flame throughout operation. Any accidental blow-out of the flame is immediately detected by the Ignition Box, and will trigger a re-ignition. In case of re-ignition failure, the FCE60 will shut off the gas supply to prevent accidents caused by gas seepage, and send out an error signal. The status of the operation of the burner is easily viewed at all times with red/green and yellow indicator lamps.

The FCE60 Ignition Box can be utilized in systems designed for permanent operation, but the Ignition Box should be shut off and restarted once every 24 hours as a safety measure, to allow the FCE60 to perform a start-up check and to ensure all functions are working. The high tension cord connecting the spark plug to the FCE60 Ignition Box must feature a noise resistor.

The FCE60 Ignition Box can be used in systems with a maximum burner output of 360kW/channel.

The FCE60 Ignition Box is certified as a safety component to the standard EN 298:2012 Automatic Burner Control Systems for Burners and Appliances Burning Gaseous Fuels.

Ignition Box Specifications	
Part Number	S-51590
Power Supply	12/24 V (DC) System
Power Consumption	Typical at 24 VDC 120 mA Max. 400 mA
Dimensions (LxWxH)	105x70x40mm / 4.1x2.8x1.6in
Weight	250g / 0.6lbs
Storage Temperature	-40°C to 85°C / -40°F to 185°F
Operating Temperature	-10°C to 70°C / 14°F to 158°F
Valve Output	Max. 2.5 A
Flame Error Output	Max 1 A
Min. Spark Frequency	7 Hz
Flame Failure Response Time	<10 sec.
Flame Failure Detection Time	<1 sec.
Housing Protection Class	IP55
Internal Supply Voltage	11 Volt
Flame Detection	Ionization (not adjustable)
Ionization Current/Operation	>3 µA
Switch-off Sensitivity	<1 µA
Vibration Resistance	10 - 150 Hz 1 g rms
High Voltage Output Cable	High tension cord, up to 6m / 19.7ft, w. ceramic cap, noise resistor and BMW connector
Irreplaceable Internal Fuse	6 A
Mounting Options	On plane surface, angle irrelevant
Connections	1: Flame Error Output 2: Valve Output 3: 12/24V (DC) w. extern. 5A Fuse. ⏏ : Ground (GND)

TF-Technologies reserves the right to make changes without further notice.

This ensures full compliance to the 2006/42/EC Machinery Directive and 2009/142/EC Gas Appliances Directive, when used in gas burner systems on machinery or in consumer appliances.

Tested to EN 13309:2010 Construction Machinery - Electromagnetic Compatibility of Machines with Internal Power Supply, the FCE60 is also in full compliance of the 2014/30/EU EMC Directive and CE marked.

The FCE60 Ignition Box is backwards compatible with the former non-certified FCE24 Ignition Box.

**EN 298:2012  
certified**

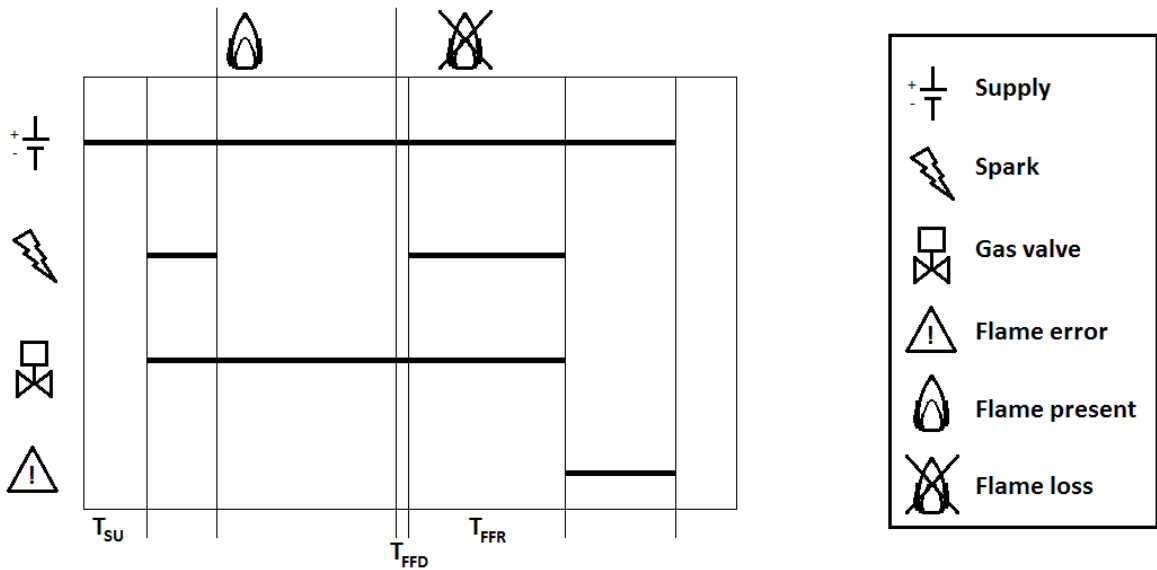


The FCE60 Ignition Box



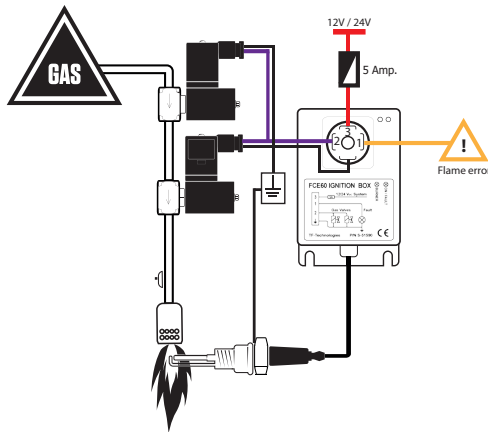
Ignition Box with High Tension Cord, Noise Resistor and Spark Plug

### Program Flow



When powering up the FCE60, both the gas valve(s) and ignition circuit are held back for about one second while the Start-Up Control ( $T_{SU}$ ) is executed. Afterwards the gas valve(s) are opened, the ignition starts and a flame appears. In case of a loss of flame, the FCE60 detects this in less than a second, which is the Flame Failure Detection Time ( $T_{FFD}$ ) and re-starts ignition. If a flame appears in less than ten seconds which is the Flame Failure Response Time ( $T_{FFR}$ ), the ignition stops and the gas valve(s) remains open. If a flame does not appear within the Flame Failure Response Time ( $T_{FFR}$ ), both the gas valve(s) and the ignition are shut off, and a flame error signal is outputted for as long as the FCE60 is powered on.

### Wiring Diagram



The flame error output (pin 1) can be connected to a lamp or a temperature control module. The supply input (pin 3/ GND) can be connected directly to a 12V/24V DC system, or it can be controlled by a temperature control module.

For an EN298:2012 compliant system, the use of two gas valves connected in series is required.

### Status Indicators

Operation Mode	ON/FAULT	
	BURNER	
Turned off	○	○
Start-up	● (One flash)	●
Igniting	○	●
Running (flame on)	●	●
Flame failure	○	●