WOODWARD

Product Specification **03308**
(Revision F, 12/2010)

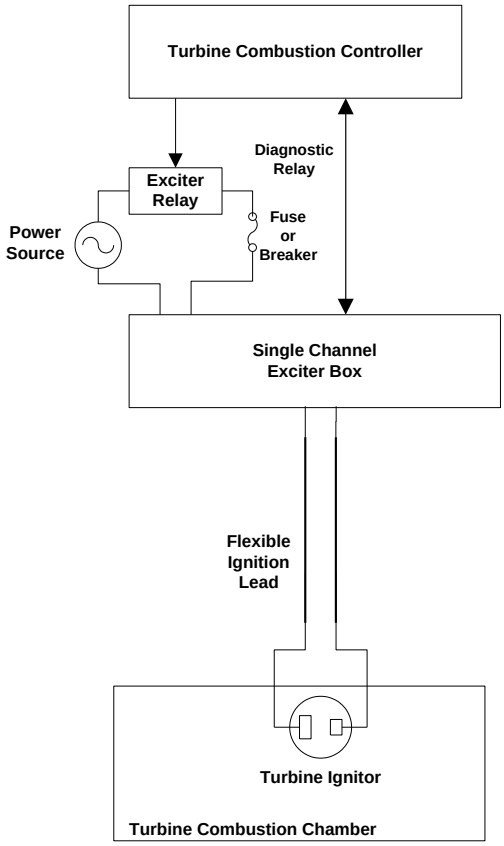
STExcite™

Industrial Gas Turbine Ignition System Driver

Applications

The ST*Excite*™ high-energy ignition driver interfaces with flexible ignition leads and igniters to provide the ignition system of industrial gas turbines. The unit is compatible with existing high-energy turbine ignition systems. Versions are available with single (ST*Excite* 2010) and dual (ST*Excite* 2020) outputs. The use of digital circuitry allows for advanced diagnostics, improved reliability, and network communication options.

The figure illustrates a typical turbine exciter system. The exciter box is the interface between an intelligent turbine combustion controller and a turbine igniter in the combustion chamber. The exciter converts electrical energy from a 115 Vac or 230 Vac source to a high-current ignition pulse. The exciter box is connected to the turbine igniter through a flexible high-voltage lead. The exciter is a "normally on" device that outputs ignition pulses whenever input power is applied through an external exciter relay. The "ON" or "OFF" state of the exciter relay is controlled by the turbine combustion controller.



Description

When power is applied, the power supply section converts the 115 Vac or 230 Vac to 24 Vdc. The 24 Vdc is then converted to the required system voltages. Once these system voltages are available and the unit passes a self-test procedure, the digital signal processor (DSP) closes the fault relay. The DSP then initiates an ignition event.

The DSP monitors the line voltage, the length of time of operation, and the internal temperature of the unit to determine if proper operating conditions exist. The unit protects itself by reducing the number of ignition events per minute should adverse conditions occur.

- Advanced digital design
- Designed for drop-in replacement of existing units
- Compatible with industry-standard igniters
- Single and dual output versions available
- On-board diagnostic capabilities
- All ignition leads and cables included
- Models are available with certification for North American Hazardous Locations
- Models are available compliant with the applicable CE Directives—EMC, Low Voltage
- DeviceNet communication capable

The heart of the system is the Digital Signal Processor (DSP) which monitors several voltages and events within the system. If the unit detects an ignition channel failure or low input voltage, the DSP de-energizes the fault relay, alerting the turbine combustion controller of a fault. The DSP will also shut down the channel.

The Alarm contact is OPEN when the exciter is NOT POWERED. The Alarm contact CLOSES 0.3 seconds after power has been supplied to the exciter. The Alarm Contact remains CLOSED as long as the exciter is POWERED and firing without detected faults. The Alarm Contact OPENS if the exciter detects a critical fault and STOPS firing.

If the Alarm Contact is OPEN, the following may be true:

- No input power is applied to the input of the unit (input power relay not energized, input power cable fault, input power relay fault, etc.).
- The input voltage is out of range high or low.
- There is no ignition lead connected.
- There is no igniter installed or connected.
- The exciter unit has an internal failure that prevents it from generating sparks.

Specifications

Specified Parameter	
Input Power:	
Single Channel	P/N 8408-921 115 V~ 60 Hz 75 VA max. for CSA Listed units for installation in the US & Canada 115 V~ 50/60 Hz 75 VA max. for CE Marked units P/N 8408-923 230 V~ 50/60 Hz 75 VA max. for CE Marked units
Dual Channel	P/N 8408-900 115 / 230 V~ 60 Hz 150 VA max. for CSA Listed units for installation in the US & Canada 115 / 230 V~ 50/60 Hz 150 VA max. for CE Marked units
Spark Rate	1.8 ±0.1 sparks/second
Output Voltage (open circuit)	15 to 20 kV
Output Voltage (typical igniter)	< 8 kV
Output Energy	2 J minimum with 3.0 m (10 ft) leads 1.5 J minimum with 9.8 m (32 ft) leads
Output Energy Duration	50 µs
Peak Power	50 000 W minimum
Peak Current	1200 A minimum
Ambient Temperature	–20 to +55 °C (–4 to +131 °F)
Diagnostic Output	Normally open relay output, 125 Vdc, 0.3 A

Regulatory Compliance

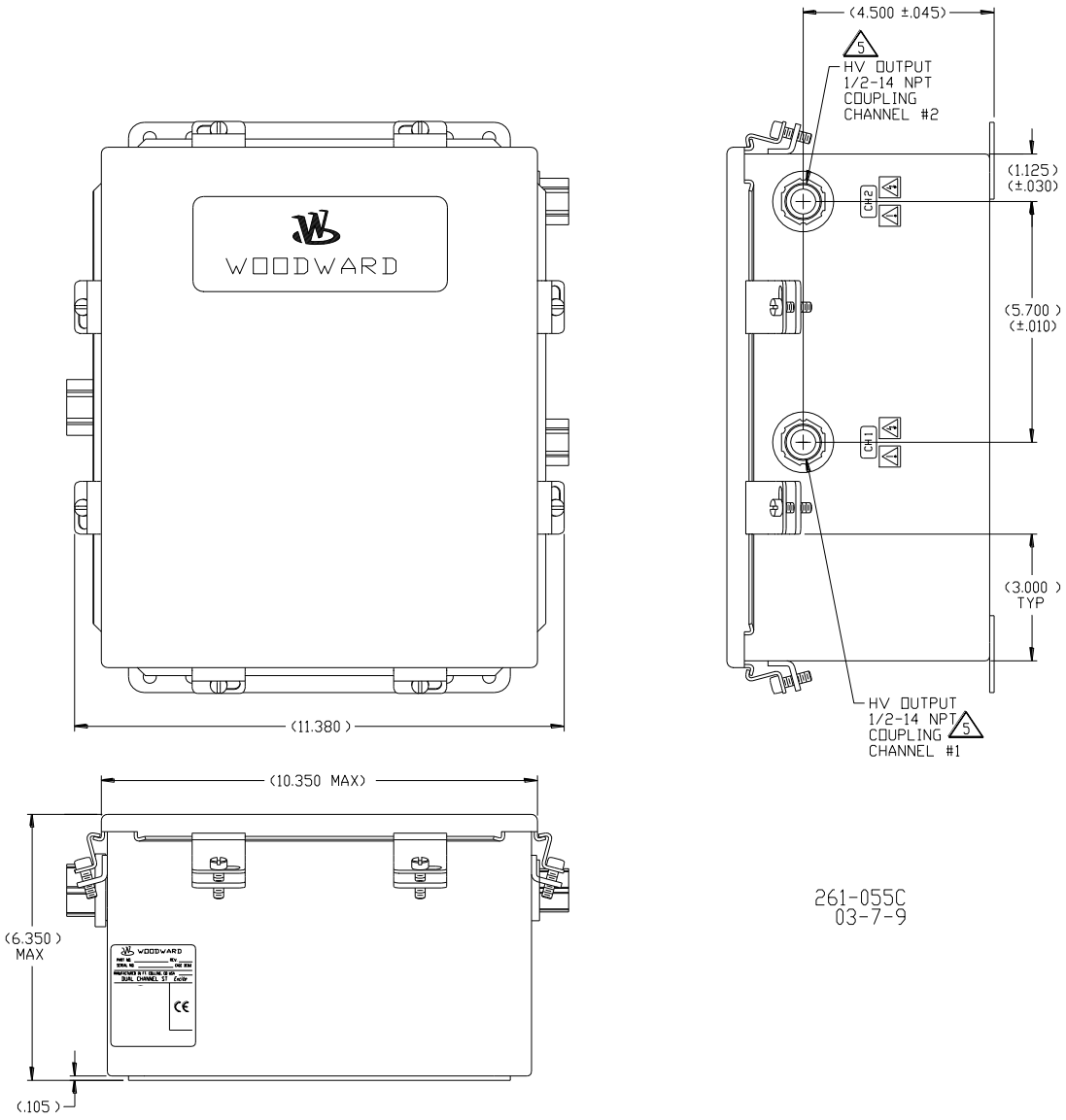
(Listings are limited only to those units bearing the appropriate Marking or Agency Identification.)

European Compliance for CE Marking:

EMC Directive:	2004/108/EC
Low Voltage Directive:	2006/95/EC

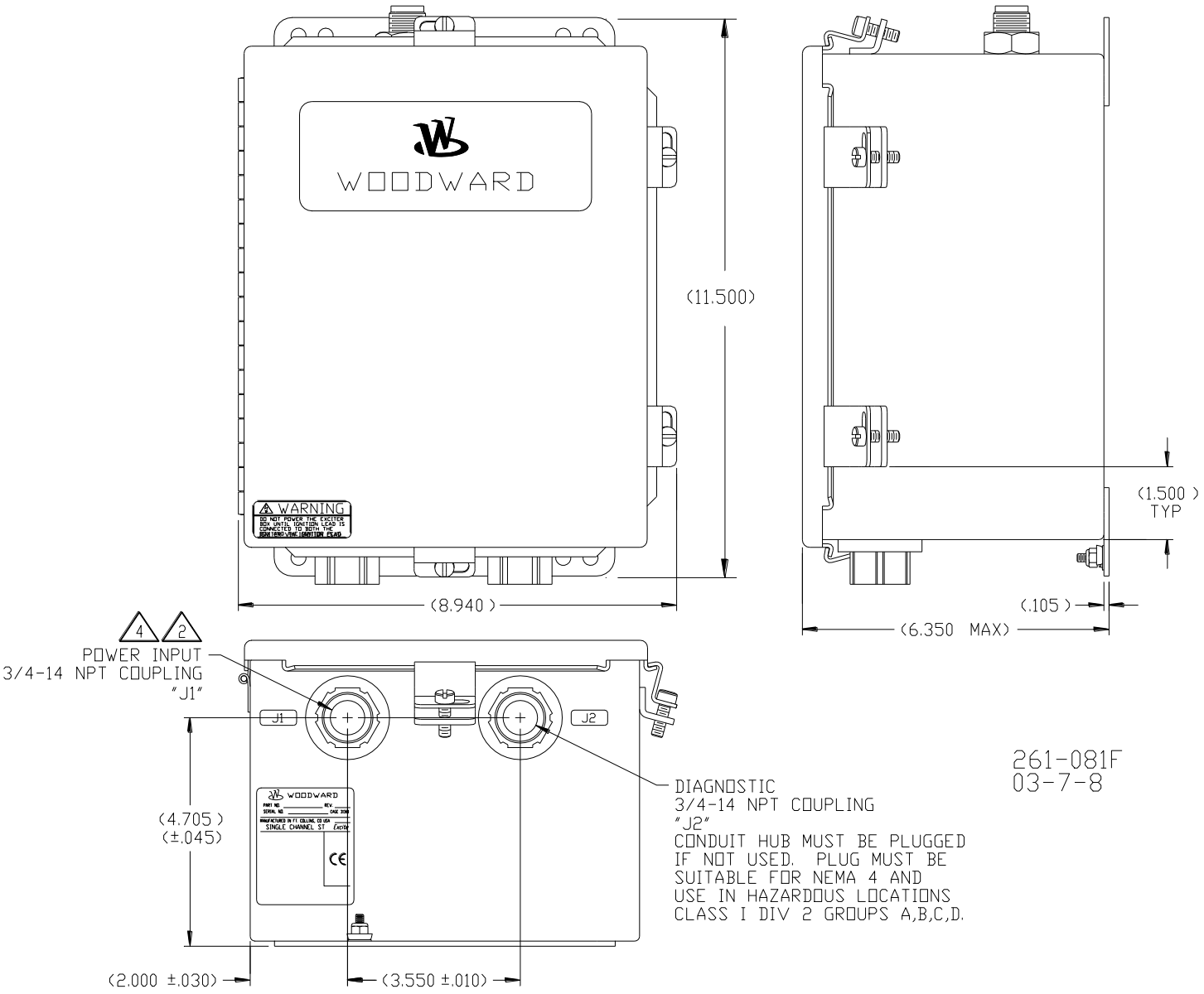
North American Compliance:

CSA:	CSA Listed for Class I, Division 2, Group D, T4A at 85 °C Ambient. For use in Canada and the United States.



ST*Excite*™ Dual Channel Outline Drawing
(Do not use for construction)

ST*Excite*™ Dual Channel



ST*Excite*™ Single Channel Outline Drawing
(Do not use for construction)

WOODWARD

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