



Model 1633 - Flue Gas O₂ Trim Control System

Trim fuel costs with the Novatech O₂ Trim Control Systems

The Novatech 1633 Flue Gas O₂ Trim Control System is ideal for:

- Boilers
- Furnaces and kilns
- Other fossil-fuel and gas fired heating systems

The Novatech 1633 Flue Gas O₂ Trim Control system is a smart investment that soon pays for itself through fuel savings... Not only that; breaking pollution regulations through inefficient burner operation becomes a thing of the past.

The Novatech 1633 Trim Control System continuously regulates the air/fuel ratio to the burner over its entire firing range from 'high fire' to 'low fire', providing optimum air/fuel ratios at all firing rates. The control system provides optimum combustion through feedback of the O₂ measurement in the stack.

The Novatech 1633 utilises Novatech Zirconia probes which can be selected for various fuels and stack gas temperatures.

Efficient combustion control requires continuous monitoring of oxygen. In addition to the benefit of optimising fuel usage, there is also less pollution by products of inefficient combustion including CO, SO_x, and NO_x.

The Novatech 1633 Trim Control System tells you what's happening

The 1633 two-line LCD readout provides plant operators with clear, plain english warnings. The two-line display provides O₂

concentration in the upper line while the lower line can indicate information including:

- Burner firing rate
- Oxygen trim actuator position
- Boiler efficiency
- O₂ deficiency
- Probe emf
- Log O₂
- Linear O₂
- CO₂
- % combustibles,
- Stack temperature
- Run hours since last service
- Date of last service

The Novatech 1633 O₂ Trim Controller System features

- Easy-to-operate, reliable, no regular calibration needed. An annual check of four reference voltages is all that is necessary
- Local 2 x 16 character display and two transmitted 4-20 mA isolated outputs
- Accurate, rapid response, low drift Zirconia O₂ sensors (ask for DS 1230 and DS 1234 specification sheets)
- Highly accurate, Hall-Effect transducer provides zero-hysteresis feedback signal (unlike potentiometers)
- Automatic, on-line calibration check or automatic purging cycle
- Compensation for flue pressure variation

- Main burner safety interlock for heated probes
- RS232 computer/printer interface or RS485 Modbus™ interface.
- Twenty-six different alarms warning operators of combustion, probe or analyser problems.

Accuracy and reliability

The Novatech 1230 series oxygen sensors provide accurate and virtually drift-free measurement for years.

The Novatech 1633 O₂ Trim Controller System can be flexibly adapted to your process.

The 1633 can regulate fuel flow by-pass lines, or trim actuators. The BFT-20 Burner Firing Rate Transmitter, mounted on the main gas control valve, transmits the burner's current firing rate to the 1633 Trim Controller. The BFT-20 is a Hall-Effect device and provides a no-hysteresis feedback signal thus giving the maximum degree of oxygen control.

Reports

Connect a standard printer or PC to the instrument, to have reports made available.

The Novatech 1633; ideal for:

- Boiler control
- Control of ceramic kilns
- Glass furnaces

**Take the first step of fuel savings;
Call Novatech to discuss your application!**

Specifications

Range of Output 1

Field selectable from the following:

- Linear: 0-1% Oxygen to 0-100% Oxygen
- Log: 0.1-20% Oxygen
- Reducing: 10⁻³⁰ to 10⁺²% Oxygen
- Deficiency: 0.00 to 10% Oxygen

Output 2

Field selectable from the following:

- Linear Oxygen
- O₂ Deficiency
- Probe EMF
- Carbon Dioxide
- Log Oxygen
- Stack Temp.
- Reducing Oxygen
- Efficiency
- Carbon Dioxide
- Combustibles %

Range of Indication, Upper Line

- Auto ranging from 10⁻³⁰ to 100% O₂

Indication Choice, Lower Line

Any or all of the following can be selected to display:

- Burner firing rate
- Trim actuator position
- Probe EMF
- O₂ Deficiency
- Probe Temp
- Carbon Dioxide
- Ambient Temp
- Auxiliary Temperature
- Sensor Impedance
- Combustion Efficiency
- Run Hours & Date
- Combustibles since last service

Accuracy and Repeatability

- ± 1% of actual measured oxygen value with a repeatability of ± 0.5% of measured value. For example at 2% oxygen the accuracy would be ± 0.02% oxygen

Inputs

- Zirconia oxygen probe, heated or unheated
- Burner feedback transmitter
- Trim control actuator feedback
- Stack or furnace thermocouple, type K or R
- Main flame safety interlock (for heated probes only)
- Purge pressure switch
- Dual fuel selector
- Remote alarm accept

Outputs

- Two linearised 4-20 mA DC outputs (max. load 1000Ω)
- Mains voltage Up / Down trim actuator
- Zirconia oxygen probe, heated or unheated

Alarms

- Common alarm relay with 20 alarm functions & three programmable alarm relays for low, very low & high O₂, probe under temperature, calibration error, purge occurring & horn

Computer Interface

- Modbus™ RS 485 network, or RS 232 for connection to a computer terminal or printer for diagnostics of the analyser, probe, sensor and combustion process

Purge or Calibration Check

- One purge or calibration check output relay to operate a mains voltage solenoid valve

Reference Air

- Integral diaphragm pump

Relay Contacts

- 0.5A-24 VAC, 1A-36 VDC

Ambient Temperature

- 0-50°C

Connection Cable

- Special cable containing shield, thermocouple compensating lead, sensor conductors & heater conductors where a heated probe or sensor is used

Power Requirements

- 240 or 120 VAC, 50/60 Hz, 125 VA (heated probe or sensor), 5 VA (unheated probe)

Weight

- 3 kg

Enclosure

- IP65, suitable for outdoors, wall or surface mounting
- IP54 with reference air breather installed

Dimensions

- 260 mm wide by 160 mm high by 95 mm deep

Accessories

- In-situ probes & sampling sensors
- Burner firing rate transmitter, BFT-20
- Probe & sensor cables
- Sample aspirators
- Purge & calibration check gas solenoid valves
- Calibration check flowmeters

Distributed by:



309 Reserve Road, Cheltenham, Vic 3192 Australia

Tel: +61 (03)9585 2833 Fax: +61 (03)9585 2844

Free call: 1800 337 063

email: info@novatech.com.au www.novatech.com.au