



**TELEDYNE INSTRUMENTS**  
*Advanced Pollution Instrumentation*  
A Teledyne Technologies Company

MODEL **703E**

# Photometric Ozone Calibrator



- ▶▶ **Primary or transfer standard for calibration of ozone analyzers**
- ▶▶ **Advanced E Series electronics**
- ▶▶ **Output concentrations from 50 ppb to 5 ppm**
- ▶▶ **Ability to set concentration directly in ppb**
- ▶▶ **Flow adjustable from 1 LPM to 5 LPM**
- ▶▶ **Up to 50 Calibration Sequences**
- ▶▶ **UV Lamp Feedback modes: current control; reference detector control; photometer control**
- ▶▶ **Optional Ethernet Connectivity**
- ▶▶ **Internal pumps**
- ▶▶ **Inlets for External Ozone Reference Sources**
- ▶▶ **Temperature & Pressure compensation**
- ▶▶ **High flow / High Output available**

The Model 703E is a microprocessor controlled ozone calibrator for use as a primary or transfer standard for calibration of Ozone analyzers. The Model 703E can deliver concentrations from 50 ppb to 5 ppm at flows from 1 LPM to 5 LPM.

The calibrator has two major components: the ozone generating device, and the photometer. The ozone generator is a flow controlled zero air supply passing by a UV lamp. Flow rate and lamp intensity are adjusted to deliver a specified ozone concentration by volume. The temperature- and pressure-compensated photometer (identical to the one used in the Model 400E Ozone analyzer) provides feedback control of the UV lamp intensity, assuring stable ozone output.

As many as 50 independent calibration sequences may be programmed into the Model 703E, covering time periods of up to one year. The setup of sequences is simple and intuitive. These sequences may be actuated manually, automatically, or by a remote signal. The sequences may be uploaded remotely, including remote editing! All programs are maintained in non-volatile memory. Model 703E has many other versatile features, including a choice of operation from the manual keyboard, via external contact closure, remotely via RS-232 or Ethernet, or automatically on a timed basis.

The diagnostics capability is the most advanced in the industry. Critical parameters are continually monitored and alarmed when out of range. The Model 703E is versatile, simple to operate and easy to keep operational.



# MODEL 703E Photometric Ozone Calibrator

## Specifications

### Ozone Generator

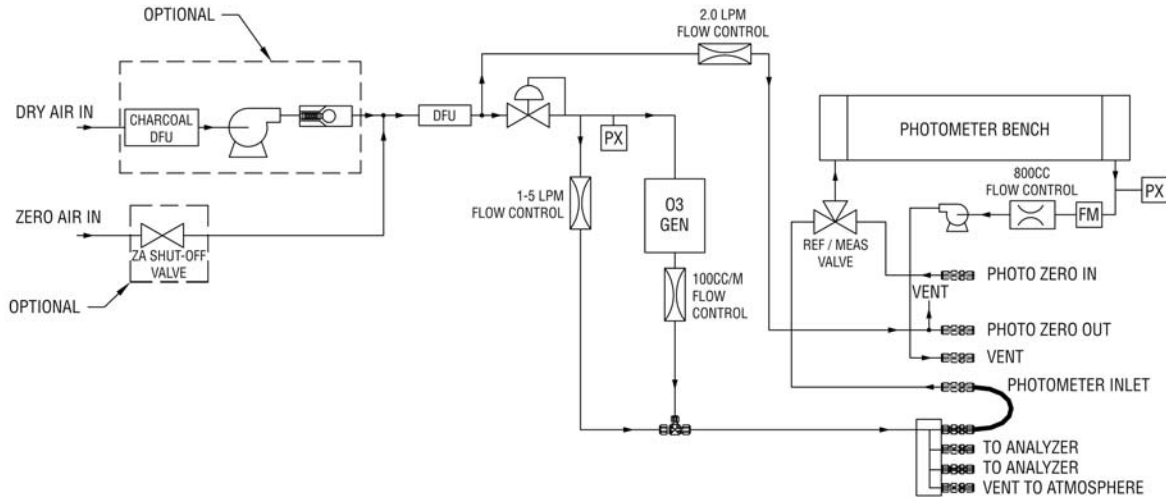
|                       |                       |
|-----------------------|-----------------------|
| Flow Rate             | 1 to 5 LPM adjustable |
| Maximum Concentration | 5.0 ppm at 1 LPM      |
| Minimum Concentration | 50 ppb at 2 LPM       |

### Photometer

|                              |                                       |
|------------------------------|---------------------------------------|
| Ranges                       | 100 ppb to 10 ppm, user selectable    |
| Zero Noise                   | 0.3 ppb (RMS)                         |
| Span Noise                   | < 0.5% of reading above 100 ppb (RMS) |
| Lower Detectable Limit (LDL) | 0.6 ppb (RMS)                         |
| Zero Drift                   | < 1.0 ppb/7 days                      |
| Span Drift                   | < 1.0%/day, < 2%/7 days               |
| Lag Time                     | < 10 seconds                          |
| Rise and Fall Time           | < 20 seconds to 95%                   |

|                             |   |
|-----------------------------|---|
| Linearity                   | 1% of reading                             |
| Precision                   | 1.0 ppb                                   |
| Bench Flow Rate             | 800 cc/min $\pm$ 10%                      |
| Operating Temperature Range | 5 - 40C                                   |
| Dimensions (HxWxD)          | 7" (178 mm) x 17" (432 mm) x 24" (609 mm) |
| Weight                      | 35.1lbs (15.7 kg)                         |
| Power                       | 100V - 120V, 220V - 240V, 50/60 Hz        |
| Test Channel Analog:        | $\pm$ 100 mV 1, 5, 10 volts               |
| Digital control outputs:    | 12 opto-isolated outputs                  |
| Digital control inputs      | 12 opto-isolated inputs                   |
| Digital status outputs      | 8 outputs                                 |
|                             | CE  |

## Schematic



## How to Order

### Model 703E Photometric Ozone Calibrator includes:

- Digital status
- Internal pumps for photometer and optional internal zero air
- Dual bi-directional RS-232
- Convenient carrying handle

### Specify input AC voltage & frequency:

- 100V - 115V       50Hz
- 220V - 240V       60Hz

### Specify output DC voltage:

- 10V     5V     1V     0.1V

### Specify zero air configuration:

- Internal zero air pump
- External zero air shut-off valve
- Both of the above

### Additional Options:

- Rack mount brackets (19") with chassis slides
- Rack mount brackets only
- Multi-drop RS-232 connection

- Dryer cartridge for internal zero air pump
- Ethernet Port (replaces one serial port)
- LEADS software
- Driver for external valves
- High flow / High output

### Accessories:

- Expendables Kit
- Spare Parts Kit
- RS-232 cable

Specifications subject to change without notice. M703E/06.07



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