

# Model 1302 OPLC

THE EMS 1302 OPLC Opacity Monitor Is a High Performance Opacity Monitoring System with Double-Pass Transmissometer



The stack mounting Transmissometer sensor system consists of an optical transceiver mounted on one side of the stack and a retro reflector mounted on the other. The main light source is electronically modulated and projects a collimated beam of light, which is split into a reference beam and a measurement beam. The measurement beam is projected across the stack to a retro reflector, which reflects it back across the stack to the measurement detector. The output of the

measurement and reference detectors are transmitted to the control room mounted monitoring unit where all output signals are analyzed.

EMS Model 1302 OPLC ratio-measurement technique provides continuous automatic compensation for variations in light source intensity to ensure prolonged instrument accuracy and stability. Since the Model 1302 OPLC is insensitive to the absolute intensity of the light source, it is not affected by light source aging.

## SENSORS STANDARD FEATURES

**ALIGNMENT VIEWING PORT** - Enables the operator to visually check system alignment at anytime during operation.

**DOUBLE PASS MEASUREMENT** - Dual beam measurement assures high sensitivity, freedom from errors due to vibration or minor misalignment.

**INSENSITIVE TO AMBIENT LIGHT** - The solid-state light modulation system eliminates possible interference due to ambient light.

**AUTOMATIC LAMP AGING COMPENSATION** - All measurements are made on a ratio basis and are thus independent of the absolute intensity of the light source.

**LAMP EXPECTED LIFE** - Field proven >7 years.

## REMOTE CONTROL UNIT FEATURES

**APPROVALS** - CE and UL Listed

**MODBUS** - Supports Modbus protocol

**OUTPUT** - Two 4-20mA.

**COMMUNICATIONS** - 2 RS232/485 Ports (selectable)

**MEMORY BACKUP** - Battery 7 years typical

**POWER** - 12/24VDC

**FIELD ADJUSTABLE ALARMS** - High opacity with time delay and Instantaneous early warning.

Figure 1 Optional Weather cover with air purge



# 1302 OPLC Opacity Specifications

Environmental Monitor Service, Inc.

## **Control unit:**

Enclosure	Panel mounted IP65/NEMA4X Dimensions 96x96x64 mm (3.8"x3.8"x2.5"). Power 20.4 to 28.8VDC < 10% ripple, 400mA, 9.6va
Approvals	CE and UL Listed
Digital Display	LED backlight range -5 to 99.9% opacity. (Option for mg/m3)
Ambient Temperature Range	0 to +50° C (+32 to + 122° F)
Power Requirements	24 VDC
Alarm Time Delay & set point	Field programmable 1-99, five pnp (source) outputs 24 VDC. Optional relays available.
Alarm Reset	Manual or Automatic
Analog Outputs	Two 12-bit Analog outputs: 4-20 mA
OPLR (Exit Correlation Lx / 2*Lt)	0.3 to 3.0
Calibration check options	Manual zero and span calibrate with dedicated zero reflector or Zero with clear stack condition or push button on demand.
Communications	2 ports (RS232/RS485 determined by jumpers)
I/O expansion port	Up to 128 additional I/O
Battery Back	7 years typical

## **Transceiver/ Reflector:**

Enclosure	NEMA 4 watertight enclosure. Power 120/240VAC, 50/60Hz. 65va
Path Length	24 inches to 46 feet (61 cm to 14 meters)
Optical System	Double Pass
Light Source Aging Compensation	Automatic
Light Source Expected Life	61,320 hours (Field proven for > 7 years)
Ambient Temperature Limits	-40 to +130° F (-40 to +54° C)
Process Gas	Up to 750° F (400° C),
Alignment Verification	Built-in through-the-lens system standard
Mounting Flanges	3 inch IPS, 150# flange, standard
Ambient Light Immunity	Solid-state electronic lamp modulation
Wiring	2 pair twisted shielded cable, 22 AWG

## **Design and performance:**

Peak and Mean Spectral Response	Photopic; 515 to 585 nm, less than 10% of peak response outside the desired 400 to 700 nm region.
Angle of View	< 4.0° from optical axis
Angle of Projection	< 4.0° from optical axis
Calibration Error	< ±2% of full scale
Response time	< 10 second
Zero Drift	< 2% (24 hours)
Calibration Drift	< 2% (24 hours)
Operational Period	6 Month

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