



Agasthya 2013 Series

BI 7010

Opacity Dust Monitor



Dual-Pass
Optics



Wide-Stack
Coverage



Multi-Unit
Display



Purge
Protection



Fail-Safe
Shutter



Plant
Connectivity

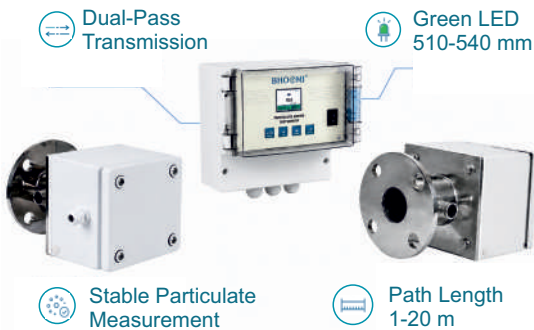
BI 7010

Opacity Dust Monitor



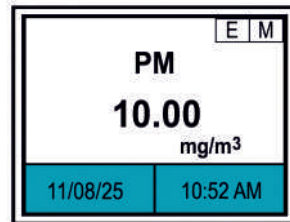
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Optical Measurement Technology



- Dual-pass transmission measurement
- Green LED light source
- Operating wavelength: 510–540 nm
- Reliable particulate concentration measurement
- Reduced susceptibility to optical drift by ratiometric measurement
- Optical path length: 1 to 10 metres

Measurement Capabilities



- Direct cross stack in-situ measurement
- Measuring range: 0–1000 mg/m³, user selectable
- Opacity: 0–100%
- Programmable units: mg/m³, mg/Nm³ and % opacity
- Accuracy: ±1% FSD
- Resolution: 1 mg/m³ for ppm and 0.1% dust opacity

Communication & Outputs



- 4–20 mA analog output
- Two relay outputs
- RS-485 communication
- Modbus protocol support
- Temperature & pressure normalisation
- O₂/CO₂ correction factor
- Integrated keypad and analog input provision

Rugged Industrial Design



- Stainless-steel construction
- No moving parts
- IP65 transmitter and receiver junction boxes
- IP65 electronic-unit enclosure
- Suitable for stack temperatures up to 300°C
- Operating humidity range: 5–95%

Fail Safe Shutter



- Automatically closes during power, purge-air, or system failure
- Protects optics from hot gas, dust, moisture, and corrosion
- Prevents lens contamination and measurement drift
- Extends component life and reduces maintenance
- Reopens automatically when safe conditions return

Air Purge & Maintenance



- Integrated lens air-purge facility
- Helps prevent dust deposition on optical lenses
- Requires moisture-, oil- and dust-free instrument air
- Air-supply pressure: 500 mbar
- Air consumption: 5–10 m³/h

KEY FEATURES

- Direct measurement in exhaust flue gas – In situ
- Unit programmable in mg/m³ & mg/Nm³
- RS485, supports MODBUS protocol
- Rugged design with no moving parts so low maintenance
- No manual adjustment/alignment required
- Automatic drift compensation
- Colour of particles will not affect the signal output
- Vibration has no effect on the signal
- IP65 rating enclosure

APPLICATIONS

- Biomedical Waste Incinerator
- Common Hazardous Waste
- Incinerator
- Cement
- Aluminium
- Fertilizers
- Iron & steel
- Oil Refinery
- Petrochemical
- Thermal Power Plants
- Sugar
- Tannery
- Zinc
- Copper
- Distillery

TECHNICAL SPECIFICATIONS

Path Length	1 to 10 m flange to flange separation
Measuring Range	0-100% Opacity, 0-1000 mg/m ³ user selectable
Units of measurement	mg/m ³ , mg/Nm ³ , % Opacity
Accuracy	±1% FSD
Resolution	0.1% opacity, 0.1 mg/m ³
Drift with Temperature	±1% opacity / month
Operating Wavelength	510-540 nm Green LED
Stack Temperature	300°C
Display	2.4 inch TFT display with keypad
Power	24 VDC. 230 V AC optional on request
Output	4-20 mA Analog Output & 2 Nos. Relay Output
Digital Communication	RS 485, Modbus RTU
Mounting	Wall
Tx & Rx Junction Box Rating	IP 65
Electronic Unit Enclosure Rating	IP 65
Electronic Unit Ambient Temperature	4 to 70°C
Electronic Unit Operating Humidity	5-95%
Input normalisation for temperature, pressure, O ₂ /CO ₂ parameters	Provision for automatic measurement input
Cable	5 core screened cable of 0.5 mm ² - 8 meters between Tx & Rx & between RX & Electronic unit. Client to specify as per site.
Air Supply Pressure	500 mbar. Must exceed maximum stack pressure
Air Supply fitting	1" BSP
Air Supply	5-10 m ³ /h

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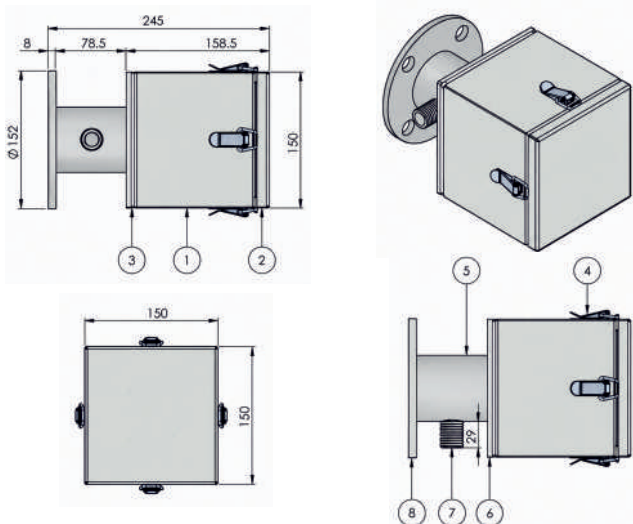
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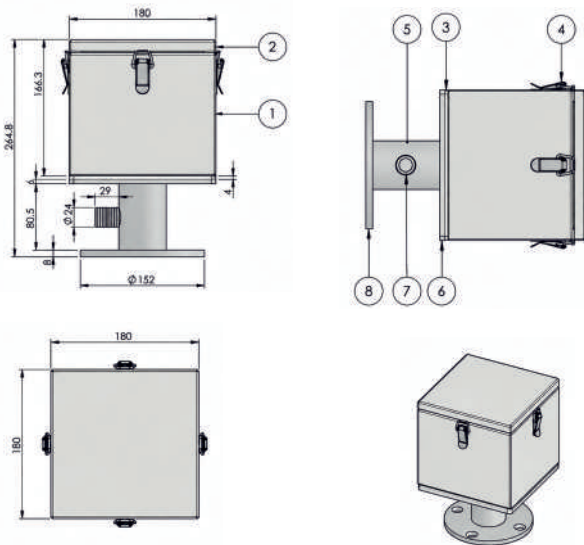
DIMENSIONS & PARTS

Reflector



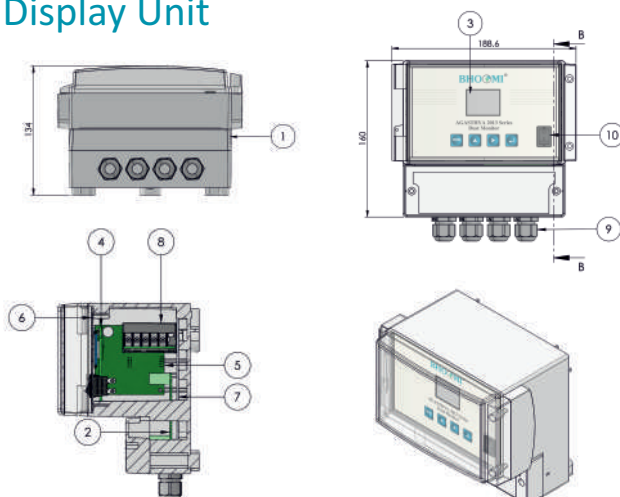
Item No.	Part Name	MOC	Qty.
1	150x150x150 enclosure	MS	1
2	Enclosure IID	MS	1
3	Gasket	Silicone	1
4	Latch	SS	4
5	Extension housing	SS	1
6	Extended square flange	SS	1
7	Inlet port	SS	1
8	Mating flange (2" Class-150)	SS	1

Transmitter & Receiver



Item No.	Part Name	MOC	Qty.
1	180x180x166 enclosure	CRCA	1
2	180x180x14 enclosure lid	CRCA	1
3	Silicone gasket	Silicone	1
4	Latch	SS	4
5	Extension housing	SS	1
6	Extension housing flange	SS	1
7	Air port	SS	1
8	Mating flange (2" Class-150)	SS	1

Display Unit



Sr.No	Part Name
1	Enclosure 188X160X143
2	Power supply card
3	TFT display
4	MCU card
5	HART card
6	Display mounting plate
7	Base Mounting plate
8	SMPS
9	Cable gland
10	Rocker switch

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SAMPLE ORDER CODE FORMAT

BI 7010	1	3	WA	A	X
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Code	Description
BI 7010	Model No.
1	24 VDC
3	3 Inch Flange Size
WA	With Accesories
A	With Fail Safe Shutter
X	With Canopy (Weather Protection)

PREFERRED ORDER CODE

BI 7010 - 2 - 2 - WA - B - X	Opacity Dust Monitor - 230 VAC - 2 inch - With accessories - Without Fail Safe Shutter - With Canopy
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ORDERING INFORMATION

Model	BI 7010	Power Supply	Flange Size	Accesories	Cutoff Window	Weather Protection
Product Name	Opacity Dust Monitor	/ XX	/ XX	/ XX	/ XX	/ XX
Order Code	BI 7010-1-V2-3-WA-A-X					
Power Supply						
1	24 VDC	1				
2	230 VAC	2				
Flange Size						
2	2-inch Flange		2			
3	3-inch Flange		3			
4	4-inch Flange		4			
Accessories						
WA	With Accessories			WA		
OA	Without Accessories			OA		
Fail Safe Shutter						
A	With Fail Safe Shutter				A	
B	Without Fail Safe Shutter				B	
Weather Protection						
X	With Canopy					X
Y	Without Canopy					Y

Note - Mating Flange, Nuts & Bolts, Hose Pipe, T-Connector, Gasket, 6-Core Cable – In Customer Scope

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Agasthya 2013 Series

Our NPL & TUV Certified Products

Continuous Emission
Monitoring System

BI 7000



Online Stack Flow
Meter

BI 7300



Online Stack
Dust Monitor - Opacity

BI 7010



Tribo Electric Dust
Monitor

BI 7020



Our Other Gases & Liquid Analyzers

Insitu Zirconia
Oxygen Analyzer

BI 2100, BI 2000



Portable Flue
Gas Analyzers

BI Flexi Pro, BI 1XX, BI 2XX



Process Gas Analyzers

**BI 3XX, 4XX, 6XX
BI 4XXX, BI 8000, BI 7400**



Renewable Energy Gas
Analyzer **BI 7100, BI 7110,**

BI 7120, BI 7130



Ambient Air Quality
Monitoring System

BI 9000



Multiparameter Water Quality
Monitoring System

BI 1000



Water Sensors

BI XXXX



Single & Dual
Channel Controllers

BI 13XX



Panel Mount

Wall Mount