



HESHBON®

DIESEL SMOKE OPACITY METER



Series DIESEL SMOKE OPACITY METER HD-410



MEASUREMENT TOOL MATERIAL

NAME	MATERIAL
Body	Steel
Inside Duct	Non combustible ABS
Prop	Steel
Probe	SUS
Hose	Silicon
Electric wire, Connect wire	Urethane

MAJOR MAKING SOURCES

Model	HD-410			
Measu. ITEMS	Smoke opacity, Smoke Dencity, RPM(option)			
Light Source	Green LED(565nm)			
Detection	Photodiode			
Shell Length & Inside.Diam.	Length : 215mm , Inside diameter : 21mm			
Shell Tempur.	Maintain constantly about 80			
Measuring range	Smoke 0.0~100.0%	Light 0.00~21.42m-1	RPM 0~8000rpm	OIL 0~150
Resolution	0.1%	0.01m-1	10rpm	1
Display	4digit 7segmentLED	4digit 7segmentLED	4digit 7segmentLED	4digit 7segmentLED
Repeat	Within 1%			
Precision	Within $\pm 1\%$ (RPM : ± 80 rpm)			
Responding time	0.5second(90%)			
Smoke detecting speed	60 times per a second			
Display of smoke density	4 times per a second			
Data dispatch	RS232 Method, 4 times per a second (Ref. Protocol)			
Warming up time	About 6 minutes			
Using filter	0.5second Besel low pass digital filter			
Electricity source	220V AC / 110V AC 60Hz			
Expending Wattage	About 50W			
Proper temperature	0~40			
Size	400(W) x 170(D) x 200(H) mm (excluding prop)			
Weight	About 5kg			
Probe length	760mm			
Probe inside diam.	Inside diameter: 10mm			
Option	RPM sensor (battery re-charge method), Temperature sensor			
Supplied Accessory	Probe, Electric code, Manual			



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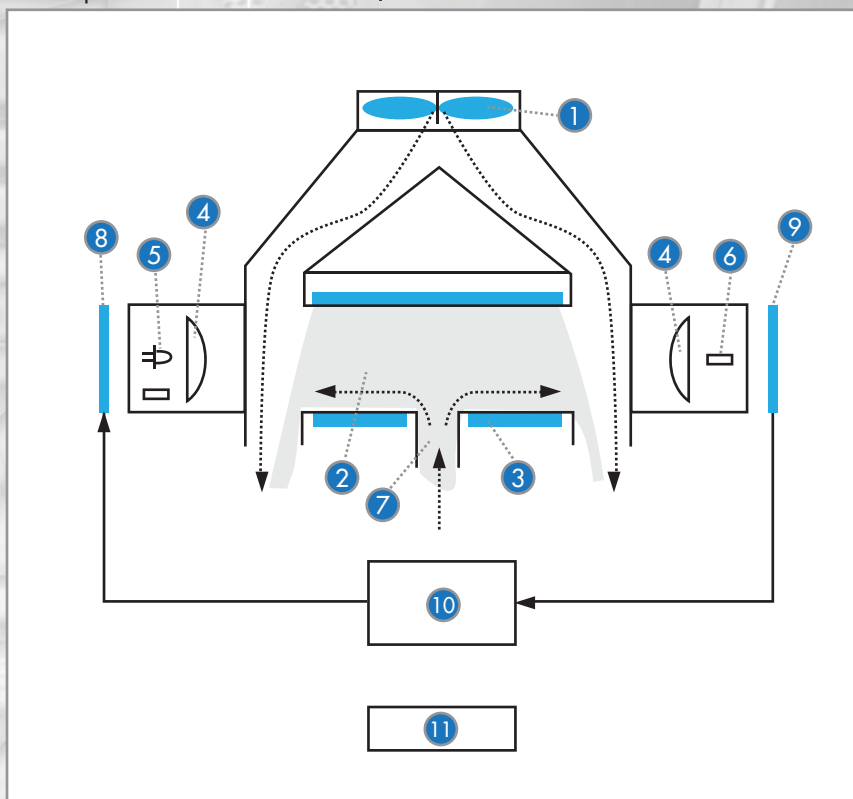
Smoke opacity meter composition



- 1 OIL TEMP. SENSOR [OPTION]
- 2 POWER CORD
- 3 RS232C CABLE
- 4 RPM SENSOR (BATTERY TYPE) [OPTION]
- 5 BOLT
- 6 PROBE & HOSE



Principle of Measurement



There are light source at the end of the sample-shell where smoke pass through and detecting part at the other end of the sample-shell. It detects the smoke density, and then converts it into figures and display.

- 1 Purge pan
- 2 Sampling-shell.
- 3 Sampling-shell constant temperature purpose heater.
- 4 Concentrating light lens
- 5 Light source(Green LED)
- 6 Light sensor (Photodiode)
- 7 Collecting gas inhaling hole.
- 8 Light source control circuit
- 9 Signal input and Analyzing circuit
- 10 AD Converter circuit
- 11 Displaying part



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