## OPACIMETER PART No. TSM-C11-U

- According to ISO11614
- Used to test the visible contaminants in emissions (exhaust smoke) from the compression combustion (diesel) engine. Suitable for environmental protection, motor vehicle testing, engine manufacturing, automobile manufacturing and automobile repair
- LCD display and touch screen, can test opacity and light absorption coefficient, simple and intuitive
- With free acceleration test and transient test function, automatic data processing
- Use sampling (split) test and air curtain protection technology, prevent the optical system from being polluted by exhaust smoke
- Test chamber is controlled under constant temperature, prevent the moisture condensation and temperature fluctuation for accurate measurements
- Automatic preheating and zeroing
- RS232 serial port communicates with external computer







standard filter (included)

sampling probe (included)



oil temperature sensor (optional)

## SPECIFICATION

Measuring rangeopacity Ns0~99.9%light absorption coefficient K0~16.0m <sup>-1</sup> rotary speed300~8000rpmoil temperature32~248°Fopacity Ns0.1%light absorption coefficient K0.01m <sup>-1</sup> rotary speed1rpmoil temperature1.8°Fojacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path8.47"Equivalent length of optical path46.93"Power supplyControl unitDimension (W×D×H)control unitoracity Nn47.400.40"	SPECIFICATION		
Interaction of the periodrotary speed300~8000rpmoil temperature32~248°Fopacity Ns0.1%light absorption coefficient K0.01m <sup>-1</sup> rotary speed1rpmoil temperature1.8°Foil temperature1.8°Fopacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path46.93"EnvironmenttemperaturePower supplyAC110V, 60HzDimension (W×D×H)control unitControl unit14.6×11.0×8.7"	Measuring range	opacity Ns	0~99.9%
rotary speed300~8000rpmoil temperature32~248°Fopacity Ns0.1%light absorption coefficient K0.01m <sup>-1</sup> rotary speed1rpmoil temperature1.8°Fopacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path8.47"EnvironmenttemperaturePower supplyAC110V, 60HzDimension (W×D×H)control unitUter Start14.6×11.0×8.7"		light absorption coefficient K	0~16.0m <sup>-1</sup>
Resolutionopacity Ns0.1%light absorption coefficient K0.01m <sup>-1</sup> rotary speed1rpmoil temperature1.8°Fopacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> Accuracylight absorption coefficient Ktight absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path46.93"Environmenttemperaturetemperature41~104°Frelative humidity5~95%RHPower supplyAC110V, 60HzDimension (W×D×H)control unittender (W×D×H)control unit		rotary speed	300~8000rpm
Resolutionlight absorption coefficient K0.01m <sup>-1</sup> Iight absorption coefficient K1rpmoil temperature1.8°Fopacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path46.93"Environmenttemperature41~104°Frelative humidity5~95%RHPower supplyAC110V, 60HzDimension (W×D×H)control unit14.6×11.0×8.7"		oil temperature	32~248°F
Resolution   rotary speed   1rpm     rotary speed   1.8°F     opacity Ns   ±2%     light absorption coefficient K   ±0.05m <sup>-1</sup> rotary speed   ±1%     oil temperature   ±3.6°F     Warm-up   15min     Effective length of optical path   8.47"     Equivalent length of optical path   46.93"     Environment   temperature     Power supply   AC110V, 60Hz     Dimension (W×D×H)   control unit   14.6×11.0×8.7"	Resolution	opacity Ns	0.1%
rotary speed1rpmoil temperature1.8°Fopacity Ns±2%light absorption coefficient K±0.05m <sup>-1</sup> rotary speed±1%oil temperature±3.6°FWarm-up15minEffective length of optical path8.47"Equivalent length of optical path46.93"EnvironmenttemperaturePower supplyAC110V, 60HzDimension (W×D×H)control unitLine State Sta		light absorption coefficient K	0.01m <sup>-1</sup>
Accuracy opacity Ns ±2%   light absorption coefficient K ±0.05m <sup>-1</sup> rotary speed ±1%   oil temperature ±3.6°F   Warm-up 15min   Effective length of optical path 8.47"   Equivalent length of optical path 46.93"   Environment temperature 41~104°F   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit 14.6×11.0×8.7"		rotary speed	1rpm
Accuracy   light absorption coefficient K   ±0.05m <sup>-1</sup> rotary speed   ±1%     oil temperature   ±3.6°F     Warm-up   15min     Effective length of optical path   8.47"     Equivalent length of optical path   46.93"     Environment   temperature     Power supply   AC110V, 60Hz     Dimension (W×D×H)   control unit   14.6×11.0×8.7"		oil temperature	1.8°F
Accuracy rotary speed ±1%   oil temperature ±3.6°F   Warm-up 15min   Effective length of optical path 8.47"   Equivalent length of optical path 46.93"   Environment temperature   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit	Accuracy	opacity Ns	±2%
rotary speed ±1%   oil temperature ±3.6°F   Warm-up 15min   Effective length of optical path 8.47"   Equivalent length of optical path 46.93"   Environment temperature   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit		light absorption coefficient K	±0.05m <sup>-1</sup>
Warm-up   15min     Effective length of optical path   8.47"     Equivalent length of optical path   46.93"     Environment   temperature     Power supply   5~95%RH     Dimension (W×D×H)   control unit		rotary speed	±1%
Effective length of optical path 8.47"   Equivalent length of optical path 46.93"   Environment temperature 41~104°F   Power supply 5~95%RH   Dimension (W×D×H) control unit 14.6×11.0×8.7"		oil temperature	±3.6°F
Equivalent length of optical path 46.93"   Environment temperature 41~104°F   relative humidity 5~95%RH   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit 14.6×11.0×8.7"	Warm-up		15min
temperature     41~104°F       Environment     relative humidity     5~95%RH       Power supply     AC110V, 60Hz       Dimension (W×D×H)     control unit     14.6×11.0×8.7"	Effective length of optical path		8.47"
Environment relative humidity 5~95%RH   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit 14.6×11.0×8.7"	Equivalent length of optical path		46.93"
relative humidity 5~95%RH   Power supply AC110V, 60Hz   Dimension (W×D×H) control unit 14.6×11.0×8.7"	Environment	temperature	41~104°F
Dimension (W×D×H) control unit 14.6×11.0×8.7"		relative humidity	5~95%RH
Dimension (WXDXH)	Power supply		AC110V, 60Hz
	Dimension (W×D×H)	control unit	14.6×11.0×8.7"
measurement unit 17.1×9.1×14.2		measurement unit	17.1×9.1×14.2"
Weight control unit 12.1b	Weight	control unit	12.1lb
measurement unit 14.3lb		measurement unit	14.3lb

## STANDARD DELIVERY

Main unit	control unit	1рс
	measurement unit	1рс
Sampling probe		1pc
Connection cable		1pc
Standard filter		1pc
Printer		1pc

## OPTIONAL ACCESSORY

Speed adaptor	TSM-C11-S
Oil temperature sensor	TSM-C11-T
Software and RS-232C cable	TSM-C11-SOFTWARE