NOVICOM

Combined CO, NO and Visibility Monitor for Tunnels

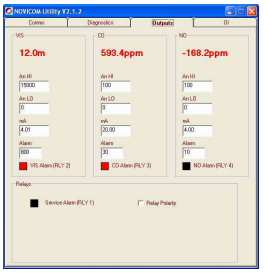
- Proven optical measurement techniques
- Rugged construction
- Simple installation/operation
- Low maintenance
- Designed specifically for tunnels
- PC utility software included
- 0-300ppm NO/CO/NOX* measurement with 0.1ppm resolution
- Visibility in Extinction (k), or MOR (m) with a resolution of 0.1% opacity
- Temperature compensated measurements
- Isolated 4-20mA analogue outputs
- Alarm relay contacts
- Choice of serial comms protocols

The NOVICOM tunnel monitor uses proven IR spectroscopy techniques to determine the level of carbon monoxide (CO) and nitric oxide (NO) in tunnels. Total oxides of nitrogen (NOX) can by inferred from the NO measurement, so the NOVICOM can also present a NOX reading. The measurement range is 0-300ppm with a resolution of 0.1ppm.

The NOVICOM uses standard light obscuration techniques to determine visibility in the tunnel atmosphere also. Measurements are made as opacity (%) and presented as the Extinction Coefficient (k), or Meteorological Optical Range (metres visibility), to a resolution of 0.1% opacity.

The NOVICVOM also measures temperature and humidity, and all measurements are compensated for both factors to ensure stable readings across all conditions.

Having been designed specifically for tunnel environments, the NOVICOM is of rugged construction using powder coated stainless steel and flame retardant polycarbonate to achieve an IP67 / NEMA 4X protection rating. This instrument can withstand the corrosive atmosphere and regular tunnel washing that the tunnel environment endures.



The NOVICOM is a self contained intelligent analyser with on-board industry standard SCADA/PLC interface options, such as 4-20mA outputs, alarm relay contacts, and a choice of serial communications protocols (ModBus is provided as standard). As such the NOVICOM has no need for a control unit (although one is available as an option) and can be set-up and controlled (using the PC based utility software – supplied) in a "stand-alone" configuration.

An optional control unit (known as an Operator Interface, or OI) is available and can be connected to the NOVICOM with a single cable length up to 1km. The OI has a display and keypad allowing for direct human interface, but also a complete duplicate set of electrical interface options to those found in the NOVICOM itself. Using an OI, the operator has the option of making SCADA/PLC interface connections at the instrument, at the OI, or at both.

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02/04/2009 V2.2

Specification:

CO/NO Measurement Performance

No.	Parameter	Units	Min	Max	Comment
1	Path length	m	5.5	6.5	
2	Display range	ppm	0	300	User selectable
3	Accuracy	ppm %	-2 -10	+2 +10	Whichever is greatest
4	Resolution	ppm		0.1	Display resolution
5	Damping	s		100/400	CO=100 NO=400
6	Temperature Stability	ppm	-2	+2	Over 20°C

Visibility Measurement Performance

No.	Parameter	Units	Min	Max	Comment
7	Path length	m	5.5	6.5	
8	Display range				User selectable
	Transmission	t	0	1.000	
	Extinction Coefficient (k)	m^{-1}	0	0.1000	
	Meteorological Optical Range (MOR)	m	0	15000	
	Opacity	%	0	100	
9	Resolution				Display resolution
	Transmission	t		0.001	
	Extinction Coefficient (k)	m^{-1}		0.0001	
	Meteorological Optical Range (MOR)	m		1	
	Opacity	%		0.1	
10	Accuracy	%			
	Extinction Coefficient (k)	m^{-1}	-0.002	+0.002	
	Opacity	%	-2	+2	
11	Damping	s	0	999	Default setting is 10s
12	Temperature Stability				Over 20°C
	Extinction Coefficient (k)	m^{-1}	-0.002	+0.002	
	Opacity	%	-2	+2	

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Specification (cont.):

Power

13	Voltage	VDC		+24	
14	Voltage Tolerance	%	-10	+10	
15	Nominal Current Consumption	A		1.0	
16	Power Up Current Consumption	A		2.0	

Interface Options

17	Serial outputs				RS485 and ModBus (on terminals) RS232 (on 9 pin D header) ProfiBus, DeviceNet, Ethernet etc. (on plug in modules in optional OI)
18	Analogue Outputs	V mA	0.0 4.0	10.0 20.0	Isolated and scalable for each constituent Isolated and scalable for each constituent
19	Digital Relay Contacts	A	0	3	@30VDC (Separate service and threshold alarms with separate contacts)

Physical

20	Ingress Protection			IP67	
21	Operating Temperature	°C	-20	+50	
22	Storage Temperature	°C	-20	+50	
23	Operating Humidity	%	5	100	
24	Regulatory Compliance				89/336/EEC (Electromagnetic Radiation) 73/23/EEC (Low Voltage)
25	Materials				Powder coated stainless stee1
26	TX/RX dimensions (each)	cm		79x16x23	L x W x H
27	TX/RX weight (each)	Kg		8.5	
28	Warranty	Months	24		Return to base warranty. Extensions available.
29	Mean Time Between Failure	Years		10	

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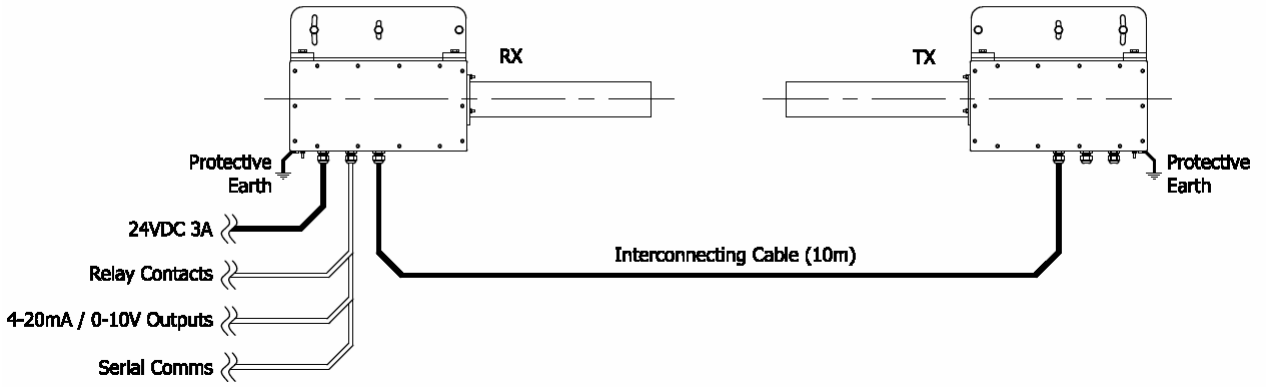
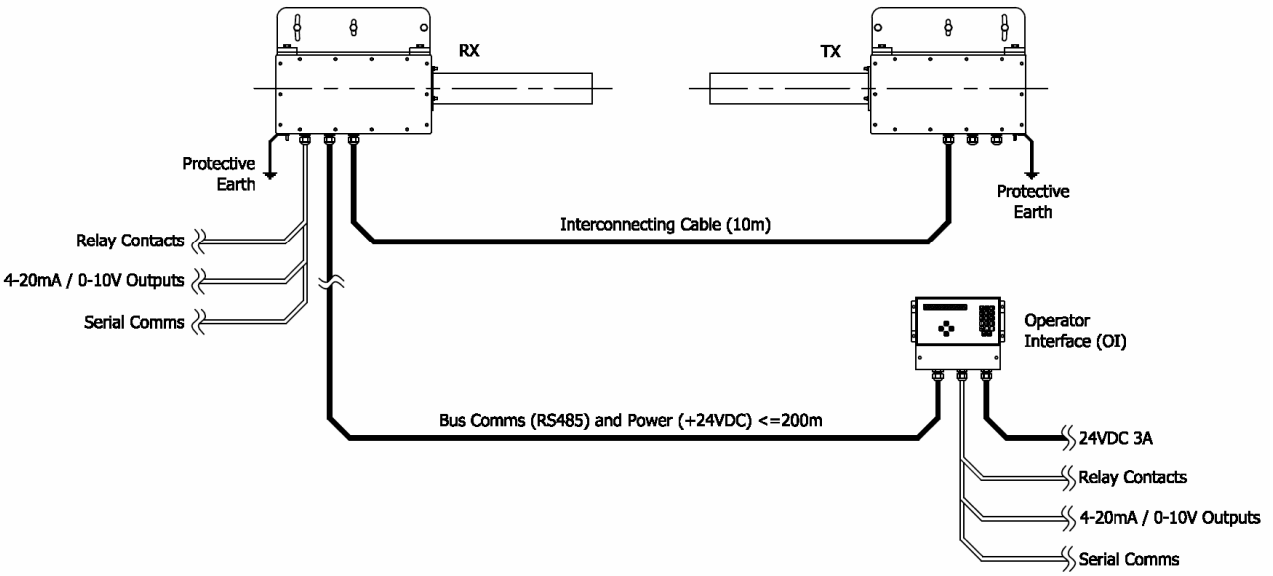
Configuration Options:

Stand-alone Configuration



Remote OI <=200m Configuration



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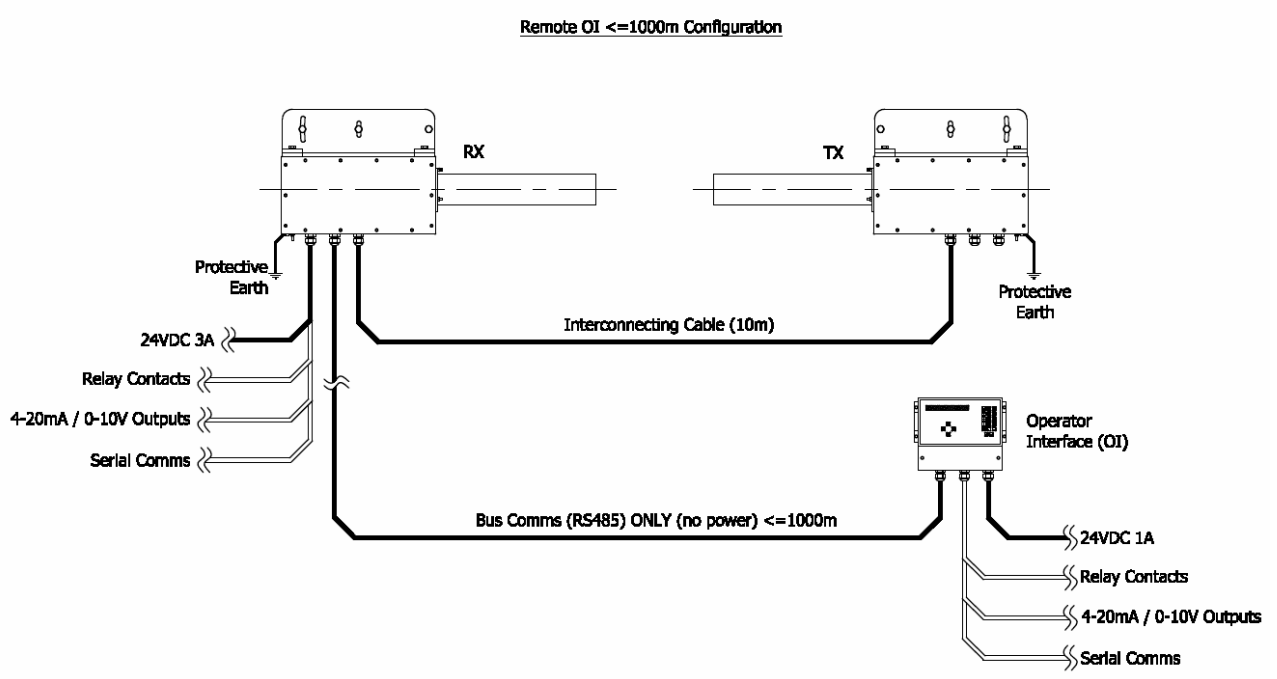
Configuration Options (cont.):



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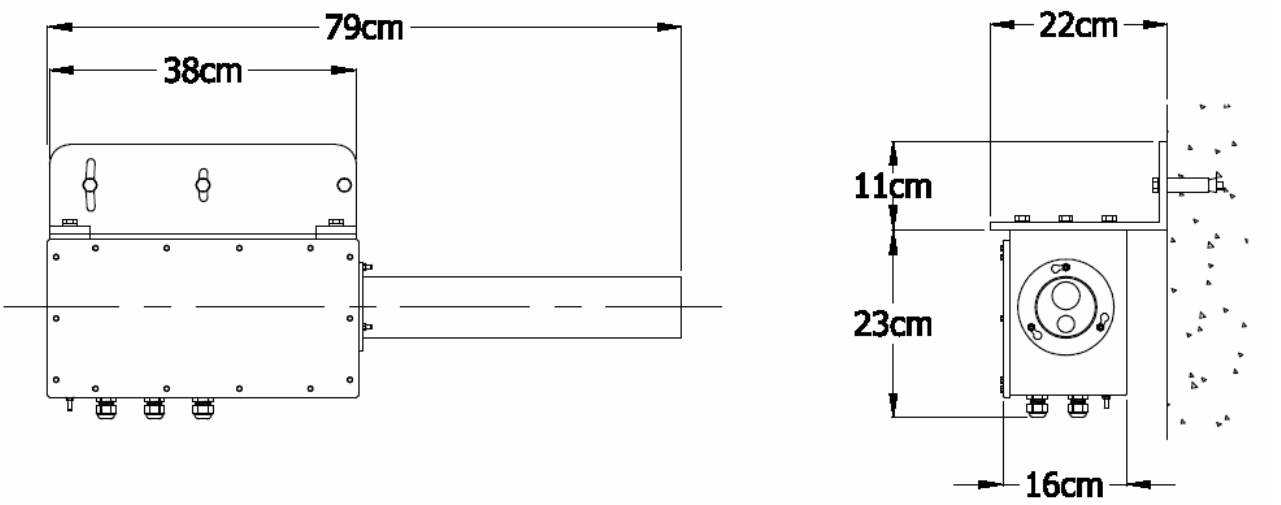
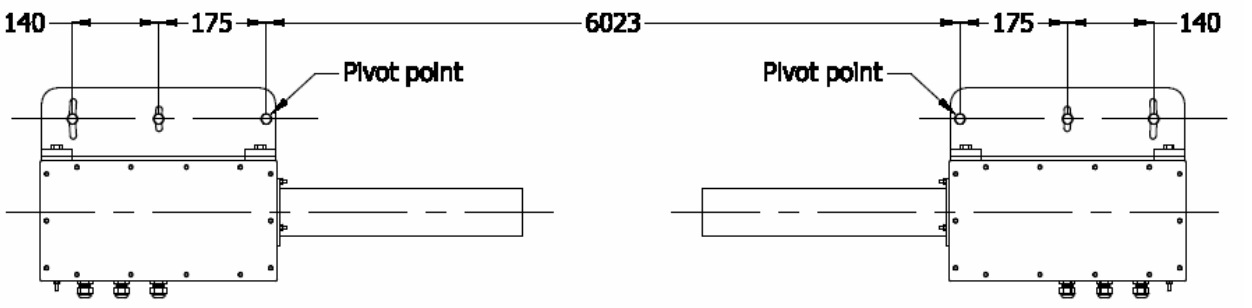
Dimensions:





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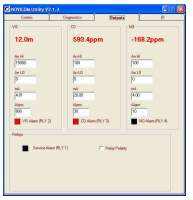
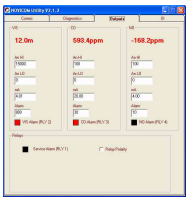
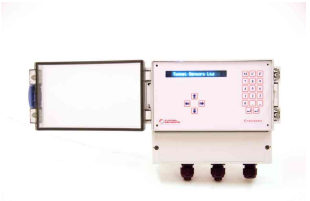
Accessories & Ordering:

Ordering Details

Description	Order Code	Notes
NOVICOM combined CO/NO/Vis tunnel monitor, right-hand hanging  + 	TSL-NOVICOM	24VDC power supply required
NOVICOM combined CO/NO/Vis tunnel monitor, left-hand hanging  + 	TSL-NOVICOM-L	24VDC power supply required
Operator Interface (OI) for standard NOVICOM 	TSL-OI-NC-03	24VDC power supply required
Operator Interface (OI) for NOVICOM with NO2/NOX output 	TSL-OI-NC-04	24VDC power supply required
Combined CO/NO check cell with snout for sight tube mounting 	TSL-NC-002	

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Visibility attenuation grid with snout for sight tube mounting 	TSL-NC-003	
75W 24VDC power supply with universal single phase AC input, boxed in IP67 protected polycarbonate enclosure with dual gland entries 	PSU-005	
LSZH screened multi-core cable for NOVICOM/OI connection 	CBL-046	Order by the meter i.e. for 10m order 10off
Belden equivalent screened multi-core cable for NOVICOM/OI connection 	CBL-078	Order by the meter i.e. for 10m order 10off

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