STS Instruments Ltd, Installation Manual

2018

SILOXANE MONITOR MANUAL

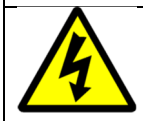
TABLE OF CONTENTS

1.0 MANUAL GUIDE

1.1 DOCUMENT VERSION

Issued by	Author	Issue Date	Revision Number
STS	Jim Ward	19/10/2016	1.0
STS	Jim Ward	20/10/2016	1.1 Final
STS	Jim Ward	06/02/2017	1.2 Wording amends P5,6,8
STS	Jim Ward	15/02/2017	1.3 wording amend P6
STS	Jim Ward	26/05/2017	1.4 Nitrogen Connection P19
STS	Jim Ward	16/08/2017	1.5 Amended kiosk diagram, added additional flow schematics 3.2.1.1/3.2.1.2 P8, added purge valve and regulator P14, amended distribution board & description P21,

1.2 SYMBOLS USED

	Safety Warning	Identifies potential hazards to either the user or the installation.	Failure to follow this information may result in physical injury that in some cases could be fatal, cause irrevocable damage to the instrument or damage to the environment.
	Electrical Hazard	Identifies specific electrical hazards to the user.	Failure to follow this information may result in physical injury that in some cases could be fatal or may cause irrevocable damage to the instrument.
	Notes	Identifies areas where clarification may be required.	

 Should at any point you require additional help or information on the use or installation of the system please contact STS at: sales@safetrainingsystems.com or +44 (0) 1344 483563

2.0 SAFETY INFORMATION

The STS Siloxane Monitor operates from a 110V mains supply, the instrument case should not therefore be opened without having first isolated the power supply and disconnected the kettle lead form the rear of the instrument. The high voltage section of the instrument is protected by clear cover – this should not be removed unless necessary- having followed the above instructions. FAILURE TO ISOLATE THE SUPPLY MAY RESULT IN ELECTRIC SHOCK.

It is the responsibility of the owner of the instrument to complete a risk assessment on its installation, operation and servicing before being commissioned for use.

Inhalation of gases may be harmful to health, it is the responsibility of the operator to ensure they have adequate training in the safety aspects of handling biogas/landfill gas and that they follow appropriate procedures at all times. The vent/exhaust form the instrument must be piped to an area designated safe to discharge to atmosphere- a flame arrestor may be required to be fitted.

Installation and Maintenance of the unit should only be carried out by suitably trained personnel according to the applicable code of practice.

Maintenance should be carried out only using STS approved replacement parts and components – use of substitutes will invalidate the warranty and may be hazardous to both operator and instrument.

No alterations should be made to the instrument or its ancillary components.

Failure to comply with the instructions in this manual could result in injury to the user.

The instrument captures fuel gas any work associated with the instrument must be carried out by a class of person competent and certified to do so.

Should at any point you require additional help or information on the safe installation or use of the system please contact STS at: sales@safetrainingsystems.com or +44 (0) 1344 483563

2.1 ENVIRONMENTAL PARAMETERS

- The Siloxane Monitor is not weatherproof and must be housed in a suitable kiosk or cabinet if sited outside of a building
- If siting inside a building consideration should be given to the local conditions as regards to dust, moisture and ventilation the Monitor is available supplied in a 19" rack case suitable for indoor use with inbuilt thermostatically controlled extraction fans.
- The monitor is suitable for use between 5C and 45C without additional cooling/heating required.
- Gas supply to the instrument should be at a minimum of 200mbar
- Adequate ventilation/air passage around the instrument should be provided.

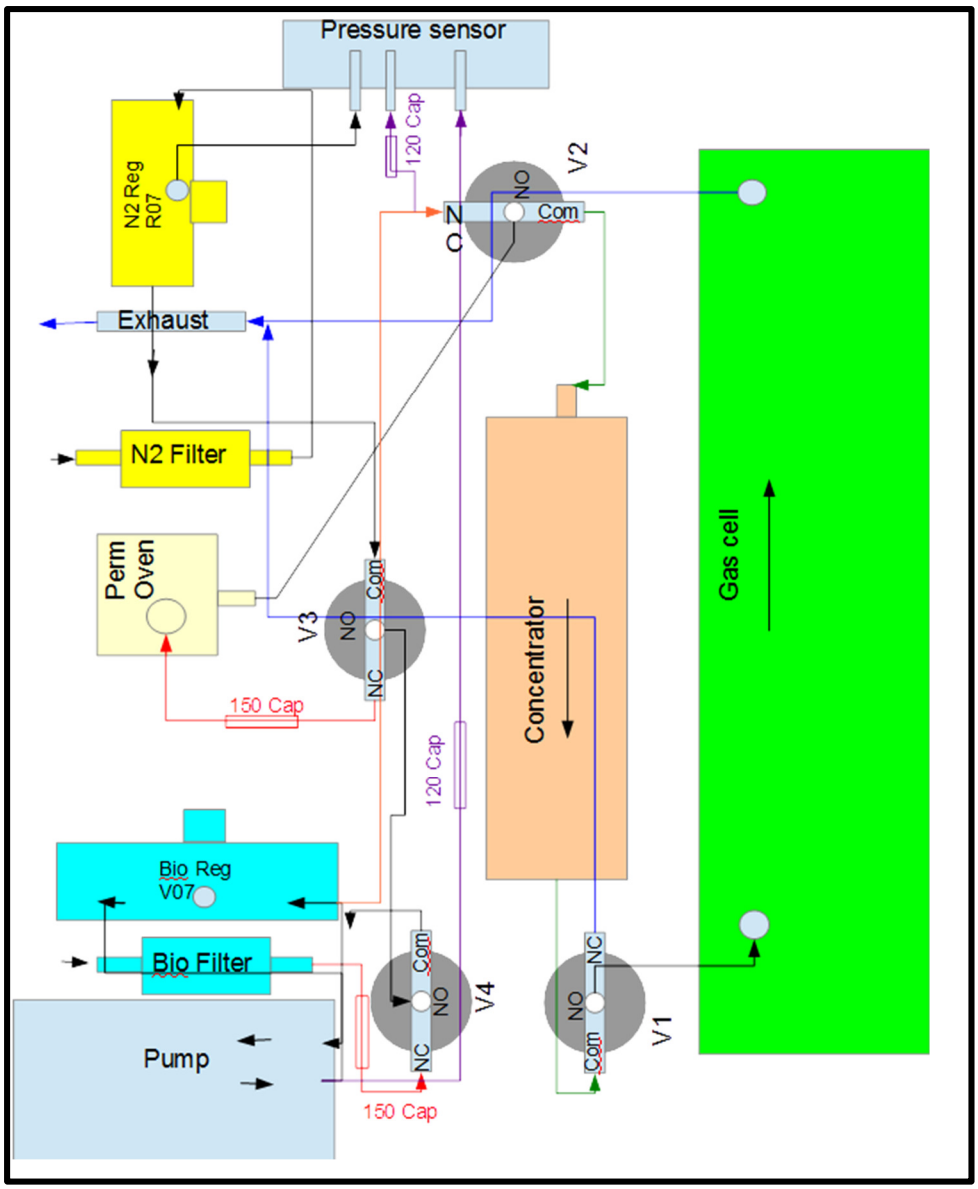
2.2 INSTRUMENTATION SAFETY SYMBOLS

	Caution
	Electrical Hazard
	Earth Point
	Hot Surface

3.0 OVERVIEW

3.1 INSTRUMENT DESIGN

3.1.1 INSTRUMENT SCHEMATIC



3.1.2 INSTRUMENT

Biogas is supplied to the instrument via a sampling system that removes water and particulates.

The instrument has been assessed in accordance with IGE SR 25 for potential leakage risk and development of explosive atmospheric conditions internal to the instrument.

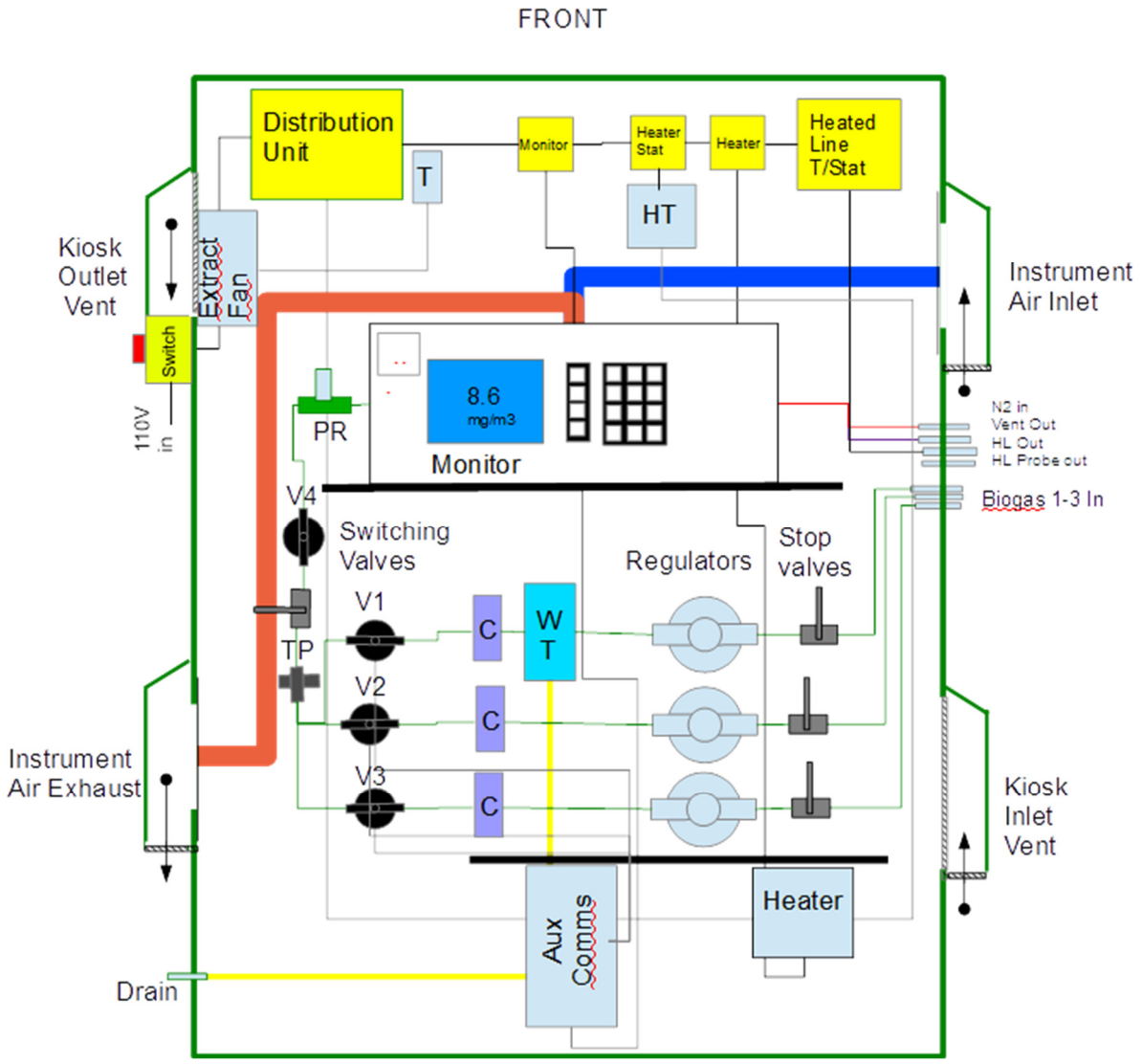
The instrument is designed to be installed down stream of a boosted gas supply.

The design of the instrument is such that failure of any internal joint inside the instrument cannot give rise to an explosive atmosphere inside the instrument. Nevertheless prior to energising the instrument a tightness test including the instrument shall be performed. This test shall be in accordance with IGE UP1B and include the instrument.
(35mb for 1 minute temperature stabilisation followed by a 2 minute tightness test). The tightness test shall have no pressure drop.
The installer shall perform a let-by test of the upstream bio-gas section isolation valve. The valve shall be closed and the pressure reduced to approx 50% of the operating pressure and tested for let-by for a period of 1 minute. If a rise in pressure of more than the gauge readable movement (GRM) is observed the isolation valve shall be replaced.

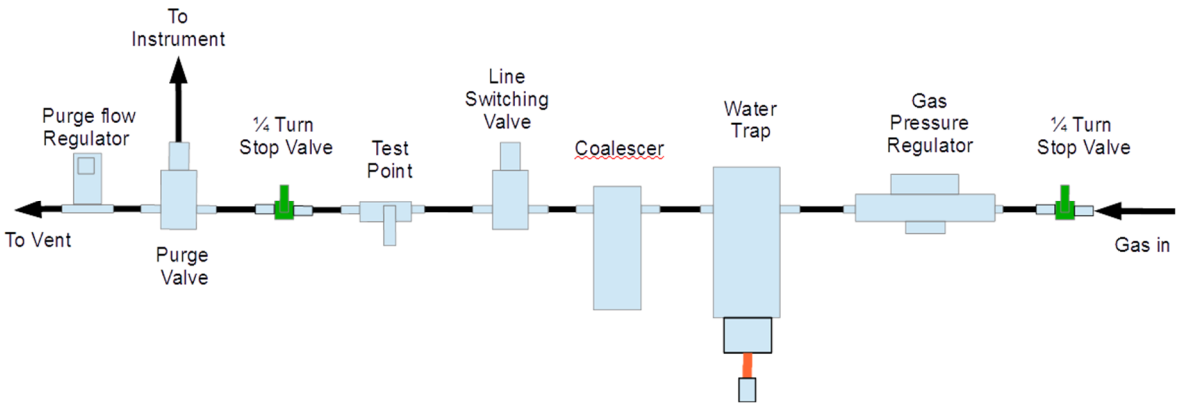
If during the tightness test there is a pressure drop then the instrument shall be disconnected and the installation sealed with the appropriate fitting, the case shall be removed and the internal elements inspected for damage. If the leakage cannot be corrected the instrument shall be removed for factory inspection and correction.
Any work on the instrument shall be undertaken by a suitably competent person approved for the time being by the Health and Safety Executive.

3.2 SAMPLING SYSTEM DESIGN

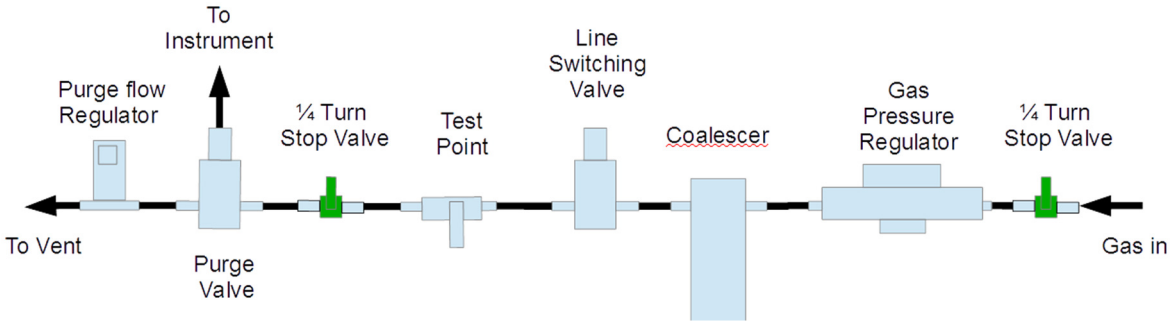
3.2.1 SAMPLING SYSTEM SCHEMATICS



3.2.1.1 PRE-FILTER SAMPLE LINE FLOW SCHEMATIC



3.2.1.2 INTERMEDIATE AND POST FILTER SAMPLE LINE SCHEMATICS



3.2.2 SAMPLING SYSTEM

Biogas is sampled by taking samples of raw and or treated biogas from the main gas pipework used to supply the biogas engine.

The sampling arrangement may be single port or multiport, so that the instrument is capable of sampling raw untreated gas, partially treated gas and treated gas prior to combustion in the biogas engine.

The sample lines should be connected into purge points by means of a reducing T and additional isolation valve. The sample points shall be installed so that the purge point on the main gas pipeline remains usable for nitrogen or air purging.

The sample points shall be provided with individual isolation and test points to enable sample line isolation and to enable sample line purging.

Sample pipelines shall be mounted on robust racking.

Sample lines shall be provided with trace heating and lagging from the instrument to the sample point. Electrical power for the trace heating shall be taken from the instrument supply.

The sample line pressure shall be tested and a regulator selected to ensure an instrument sampling system pressure does not exceed 35mb. If the system pressure has been declared by the operator the installer shall nevertheless verify the site system pressure and selected regulator and ensure that compliance with a 35mb inlet pressure is achieved.

The sampling pipework is directed to solenoid valves these are under the control of the instrument which will select the sample it is measuring. The installer shall ensure that each sampling point is directed to the correct solenoid in the sampling system.

Immediately after the solenoid valves the biogas is sent to a pressure regulator. Normally the pressure regulator has been preselected for the site based on operator biogas pressure data. The Installer is required to verify the pressure immediately downstream of the gas pressure regulator.

A coalescing (water trap) device is provided immediately after the regulator, the coalescing filter is provided with an auto drain point. The auto drain is a potential methane release point and must be terminated outside of any enclosed space, and marked with a warning label to indicate that it could release methane.

After the coalescing filter some installations are provided with a flame arrester, this is an optional feature selected by some operators. If a flame arrester has been provided the installer should ensure that it does not excessively restrict gas flow during commissioning.

The final treatment stage in the sampling system is a particulate filter, this does not require further checking during installation.

3.2.3 SAMPLING SYSTEM GAS TESTING

The siloxane instrument has an isolation valve immediately before the instrument, and immediately after the solenoid valves.

The sampling system downstream of the gas regulator shall be tested in accordance with IGE UP1B. (to 35mb with 1 minute temperature stabilisation followed by a 2 minute tightness test). There shall be no discernible pressure drop over 2 minutes.

The sampling pipework shall be tested in accordance with IGE UP 1 Ed 2 except hydrostatic testing shall not be used.

The testing shall be performed without trace heating being energised. For most installations the stabilisation period will be 10 minutes with a strength test duration (STD) of 5 minutes, the maximum % drop will be 20% of the Strength Test Pressure (STP)

For installations where the gas supply is less than 100mbar the stabilisation period will be 5 minutes and the strength test duration (STD) will be 5 minutes.

With the trace heating energised the installer shall verify the temperature of the sample lines. The minimum temperature for acceptable operation is 60 deg C.

3.3 STANDARD INSTRUMENT FEATURES

- Membrane Keypad suitable for gloved use
- Clear large LCD display
- Internal datalogging with on screen recall
- Removable SD data card for data download
- Shock mounted feet to prevent vibration effects
- Temperature controlled operation

- Automatic system purging and safety cut outs

3.4 OPTIONAL FEATURES

3.4.1 4-20mA DATA LINE

Provided for the transfer of data to a 3rd party system.

3.4.2 REMOTE DATA ACCESS

A data service accessible from any internet connection where individual or groups of monitors can be viewed to see current and trend data on a secure website. Email alerts to set alarm thresholds may be configured and data downloaded as CSV files.

3.4.3 SOLENOID SWITCHING VALVES

Provided to allow a number of different sampling points to be monitored automatically.

3.4.4 KIOSK ENCLOSURE FAN CONTROL

For temperature control to prevent overheating of the instrument in hot environments.

3.4.5 HEATED LINE

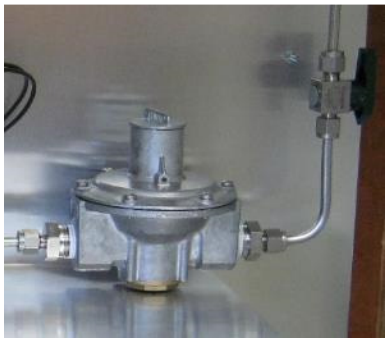
Used where pipework is run outside of buildings to prevent diurnal fluctuation due to condensation of Siloxanes into pipework – typically 16A.

3.5 KEY COMPONENTS

3.5.1 MONITOR & KIOSK

3.5.2 REGULATOR

The sampling system uses a Gas regulator set to a maximum outlet pressure of 35mbar, the regulators are unidirectional so care must be taken to ensure correct orientation to the flow. Testing must not place a back pressure on the regulator greater than 35mbar or damage to the unit may result.



3.5.3 AUTOMATED WATER TRAP

The automated water trap is designed to remove excess moisture form the gas stream before entering the instrument. The trap should be located such that it is vertically mounted by means of the fixing bracket at the top of the unit. The trap is powered and activated by the Siloxane Monitor via the Ancillary box which supplies the trap with 24V to operate the solenoid switch.

The automated trap will activate when the internal float rises sufficiently to trigger the solenoid valve to be opened. The fluid is evacuated from the reservoir by the incoming gas pressure until the float returns to the rest position which closes the solenoid.

3.5.4 COALESCING FILTER

The coalescing trap is designed to remove very fine water particles from the gas stream, it should be situated in line between the water trap and the flame arrestor. The trap should be secured vertically by means of the fitting at the top of the unit This trap does not drain and should not have any visible water inside. If there is water present, the filter element should be changed immediately and the auto drain trap should also be checked to ensure its correct function.

Note: The fittings on the Coalescer are 1/8" NPT to ¼" Swagelok

The Coalescing filter should be changed annually – once replaced ensure that the vessel is pressure tested for leaks before setting the system live.

3.5.5 LINE SWITCHING SOLENOIDS

Where more than 1 sample line is being installed the kiosk is configured with up to 3 electrical operated switching solenoid valves. These valves are orientated such that the normally closed

orifice faces the incoming flow. This means that the valve is always closed unless powered open when that line is selected for sampling. This reduces any leakage potential from the valves.

Where switching valves are used they must be fitted after the Regulator and an Isolation valve fitted for each line.

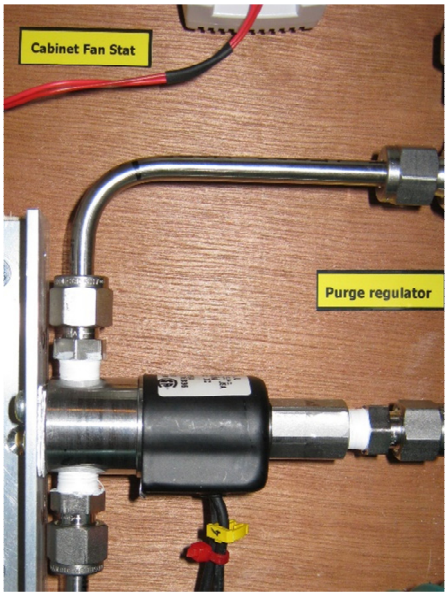
3.5.6 HEATED LINE

The heated line is connected to the distribution panel via the thermostat box. The line requires a 16A supply. The Heated line and temperature sensor are passed through the gland plate of the kiosk and the incoming biogas sample line are bundled with the heated line and sensor are insulated using pertec waterproof insulation.

The line temperature is set at 60C to prevent condensing of the siloxanes in the pipework.

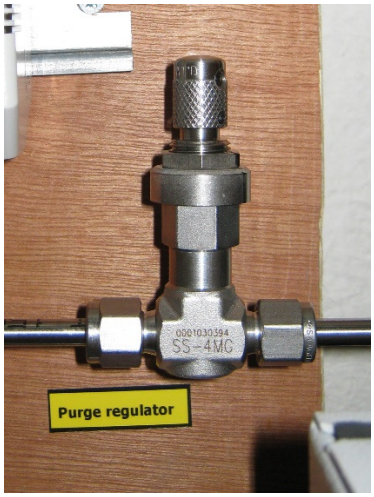
3.5.7 PURGE SELECTION SOLENOID

The instrument operates a purging system between each sample that ensures that the line is not contaminated by the previous sample. The purge selection solenoid switches the line from going through the instrument to being sent to the vent pipe. This should be connected with the gas entering the NO port, the purge being connected to the NC and the instrument to the Common.



3.5.8 PURGE FLOW REGULATOR

In order to regulate the amount of gas exhausted during purging an inline regulator is used. The regulator is factory set at 200-250ml/min.



3.6 SD CARD

A standard SD card of 2GB or greater is required. The Instrument will not correctly run without this SD card and will CRASH upon starting a Logging Cycle.

3.7 DATA CONNECTION LINE

On the rear of the instrument there is a 12-way connector (colour coded Blue) which is for connection of the 4-20mV data lines. The instrument supports up to 4 data parameters. Where specified this connector is mated to the Remote GSM Data Console.

3.8 ANCILLARY BOX

Sample line switching to solenoids 1-3

24V supply to Water trap

24V Exterior cabinet fan supply

3.9 REMOTE GSM DATA CONSOLE

Where specified a GSM data communications box is fitted which takes the 4-20mV inputs from the instrument via the 12-way (Blue) connector. This box houses an internal area and is preconfigured for each site. Should alteration to the unit be required please contact STS for further information.

 Danger of electrocution – disconnect from mains supply before opening box.

4.0 INSTALLATION

The siloxane instrument is designed for installation in a building or kiosk, the instrument and sampling system are available pre-mounted in a weather proof kiosk, the container is provided with all necessary vent, drain and power connections.

If the instrument is being installed in a building or kiosk that contains other equipment, then it should be provided with:

Approved instrument vent connections

Electrical Power

Nitrogen Purge connection

Biogas sampling connections

Drain connection

Sample Vent connection.

4.1 VENTILATION

The instrument ventilation is designed to prevent any risk of a build-up of methane inside the instrument, the correct provision of the vents is necessary to ensure that the instrument remains safe.

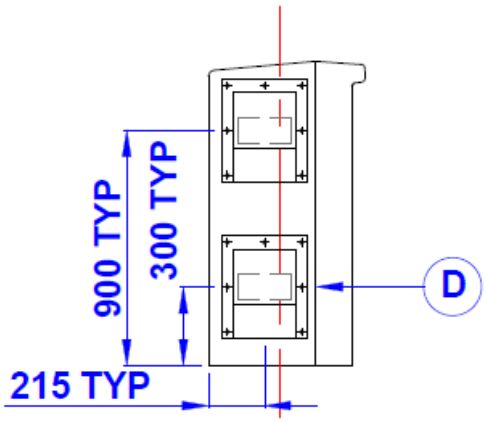
The ventilation shall be configured so that the air supply to the instrument is drawn through a grill from a horizontal duct laid with a 3 degree fall away from the instrument.

The discharge vent connection shall be discharged outside of the building at a safe location, the discharge vent shall be terminated with a bend to prevent wind driven rain from entering the duct. (where the standard STS kiosk is supplied all vents are covered with cowls to prevent ingress)

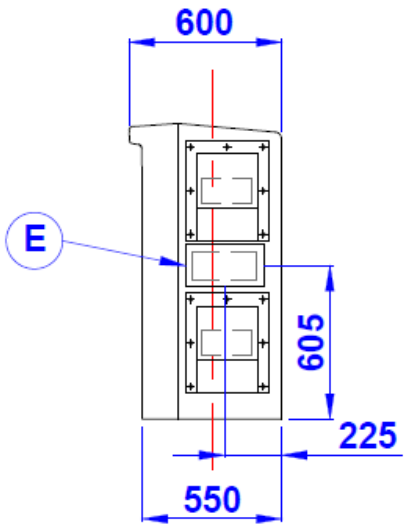
The Kiosk is ventilated through an open grille to the lower right hand side providing through air ventilation, A thermostatically controlled fan assists in additional ventilation – this is set to operate at temperatures over 10C.

4.2 PRE-INSTALLATION

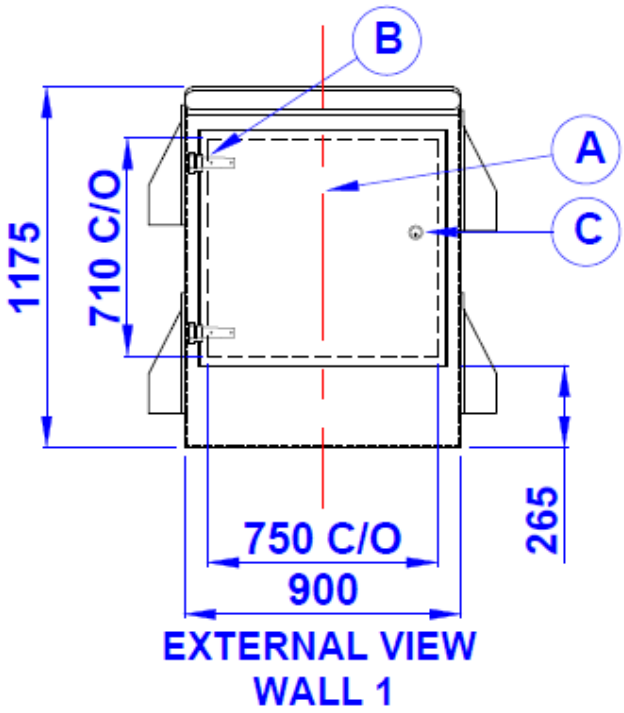
Kiosk siting and fixing down:



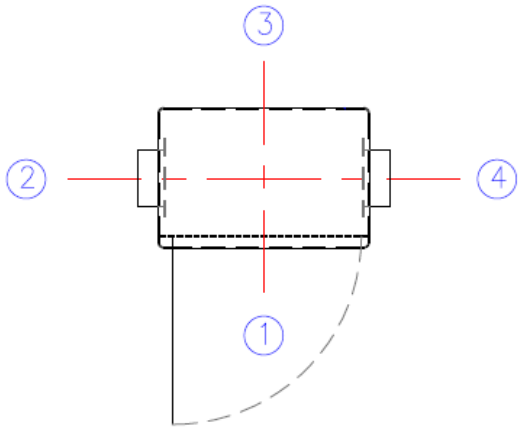
EXTERNAL VIEW
WALL 2



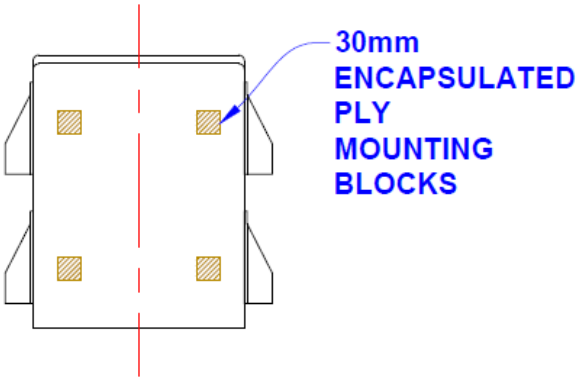
EXTERNAL VIEW
WALL 4



EXTERNAL VIEW
WALL 1



EXTERNAL
PLAN VIEW

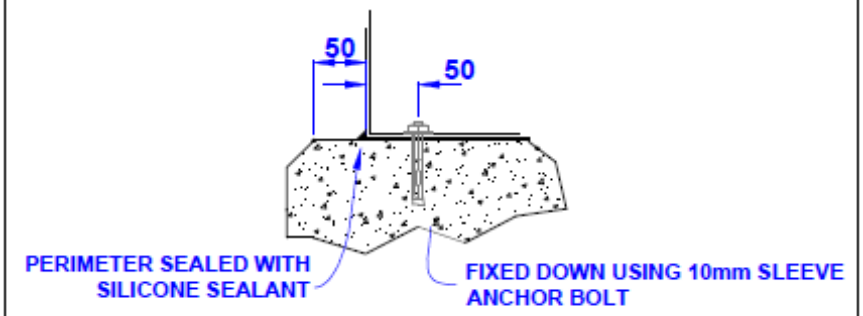


EXTERNAL VIEW
WALL 3

FINISH AND COLOUR				
	EXTERNAL	INTERNAL	ROOF	DOOR(S)
FINISH COLOUR REF. CODE	SEMI-GLOSS GREY 10.A.07	GRP WHITE	SEMI GLOSS GREY 10.A.07	SEMI-GLOSS GREY 10.A.07

ITEM	DESCRIPTION
A	SINGLE DOOR
B	STAINLESS STEEL SMALL HINGES
C	CYLINDER NIGHT LATCH LOCK
D	SLIMLINE HMB VENT C/W VERMIN MESH
E	APERTURE - 250W x 110H, c/w GRP GLAND PLATE - 310W x 170H

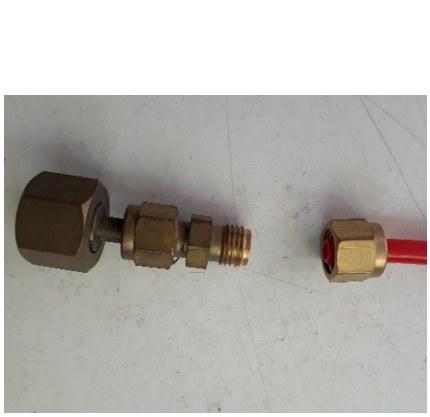
MANUFACTURING INFORMATION	
WALLS:	SINGLE SKIN GRP ENCAPULATED 30mm PLY MOUNTING BLOCKS
ROOF:	SINGLE SKIN GRP
BUILD TYPE:	READY BUILT
BASE FLANGE:	GRP MEMBRANE FLOOR
KIOSK WEIGHT:	45 KG
OTHER INFO:	



4.2.1 NITROGEN CONNECTION

Before operation the Nitrogen cylinder must be connected and turned on. The Nitrogen is required to be set to 1.0 Bar.

Nitrogen should be of Technical Grade 99.999% purity. A standard N2 regulator should be fitted to the cylinder and the Special adaptor fitting supplied by STS used to connect the ¼" pipe.



4.3 ELECTRICAL SETUP

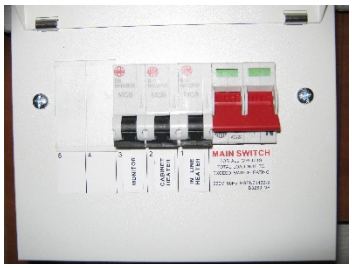
4.3.1 POWER SUPPLY

The Siloxane monitor and ancillaries are designed to run from a 110V centre tapped supply providing 22Amps.

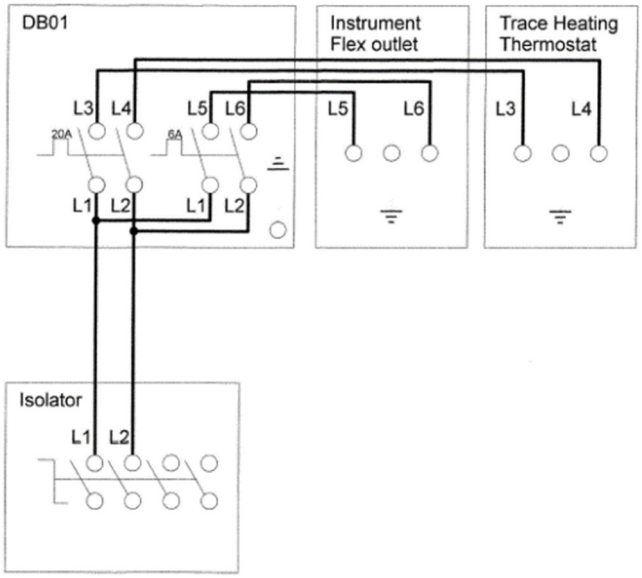
Danger of electrocution – isolate from mains supply before working on Electrical circuit.

4.3.2 COMPONENTS

The installation comprises an isolator kill switch situated externally on the kiosk, a distribution panel housing a 10A MCB for the heated line, a 10A MCB for the cabinet heater and a 6A MCB for the instrument power. Flex outlets supply the connection to the instrument, heated line thermostat and cabinet heater.



4.3.3 CIRCUIT



4.3.4 CERTIFICATION

The electrical installation of the kiosk has been carried out by a suitably qualified electrician to BS7671 and an electrical installation certificate issued.

EMTF CE

Electrical heating tape for freeze protection or process heating of pipework and vessels.

MICROTRACER

Constant Wattage Heating Tape

- Withstand temperatures upto 200°C
- Available in outputs upto 50W/m
- Can be cut to length at site
- Particularly suited to small bore pipework
- Full range of controls and accessories
- Available for 110/120 and 220/240VAC
- High Corrosion Resistance

FEATURES

Microtracer type EMTF is a medium temperature parallel resistance, constant wattage, cut-to-length heating tape that can be used for freeze protection or process heating.

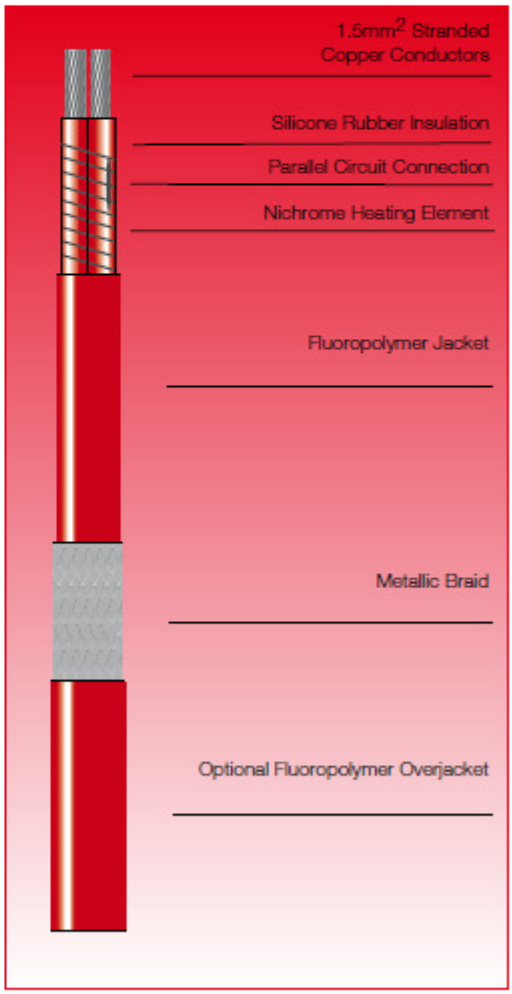
It is particularly suited to small instrument impulse, analyser lines, or process pipes located in non-hazardous areas.

Microtracer type EMTF is chosen when short or moderate circuit lengths are required (select Minitracer if longer circuits are required).

The installation of EMTF heating tape is quick and simple and requires no special skills or tools. Termination and power connection components are all provided in convenient kits.

OPTIONS

EMTF..C	Tinned copper braid provides mechanical protection for base heater and may be used when traced equipment does not provide an effective earth path.
EMTF..CF	Fluoropolymer overjacket over tinned copper braid provides protection where corrosive chemical solutions of vapours may be present.



HEAT TRACE™ SETTING THE STANDARDS LEADING THE WAY

FM APPROVED

SPECIFICATION

MAXIMUM TEMPERATURE	Un-energised Energised	200°C (392°F) See Table
MINIMUM INSTALLATION TEMPERATURE		-80°C (-112°F)
POWER SUPPLY		220 - 240 VAC or 110 - 120 VAC

WEIGHTS & DIMENSIONS

Type Ref	Nom. Dims. (mm) +/-0.5	Weight kg/100m	Min. Bending radius (mm)	Gland Size
EMTF	7.2 x 4.0	6.4	20	M16
EMTF..C	8.2 x 5.0	9.6	25	M16
EMTF..CF	9.0 x 5.8	12.0	30	M16

CONSTRUCTION

Grade	2.2 to BS6351:Part 1
Heating Element	Nickel Chromium
Power Conductors	Tin Plated Copper 1.5mm^2
Conductor Insulation	Silicone Rubber
Jacket	Fluoropolymer (FEP)
Braid	Tinned Copper
Overjacket (Optional)	Fluoropolymer (FEP)

ORDERING INFORMATION

Example 33 EMTF2-CF

- 33 — Output 33W/m
- EMTF — Microtracer type EMTF
- 2 — Supply Voltage 220 - 240 VAC
- C — Tinned Copper Braid
- F — Fluoropolymer overjacket

ACCESSORIES

Heat Trace supply a complete range of accessories including termination/splice kits, end seals, junction boxes and controls. These items are recommended for the correct operation of EMTF products.

MAXIMUM PIPE / WORKPIECE TEMPERATURES

The surface of the heater must not exceed the maximum withstand temperature of its constructional materials. This is ensured by limiting the pipe or workpiece temperature to a safe level either by design calculation (a Stabilised Design) or by means of temperature controls.

For worst case conditions, the temperature of steel pipes should be limited to the following levels:-

MAXIMUM PIPE/WORKPIECE TEMPERATURES (°C)

HEATER NOMINAL OUTPUT (W/m)	MAXIMUM PERMISSIBLE PIPE TEMP (°C) EMTF	EMTF-C	EMTF-CF
6.5	190	190	190
13	175	175	185
23	135	145	155
33	95	100	100
50	45	60	70

For conditions other than worst case, or pipes of other materials (eg. Plastic, Stainless Steel, etc.), consult Heat Trace

Tolerances: Voltage +10%; Resistance +10%; -0%

Pipe temperatures higher than those given above may be accommodated by using Heat Trace Ltd voltage compensating devices eg. POWERMATCH™ - call for further details.

MAXIMUM CIRCUIT LENGTH

OUTPUT (W/m)	MAX. CIRCUIT LENGTH* 115V	230V	ZONE LENGTH (NOM.) 115V	230V
6.5	82m	164m	1000mm	1500mm
13	58m	116m	800mm	1100mm
23	44m	87m	900mm	1000mm
33	36m	73m	750mm	1000mm
50	30m	59m	1000mm	1000mm

*For ±10% end-to-end power output variation

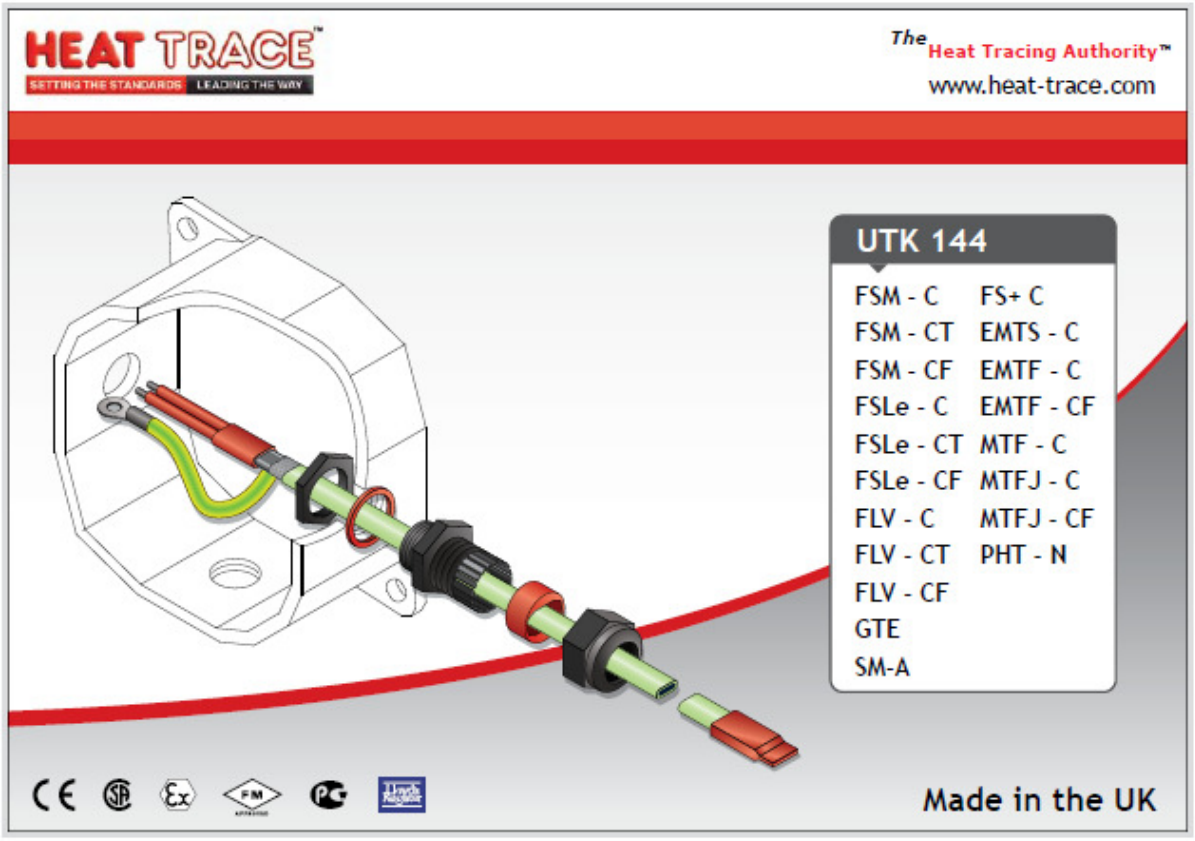
POWER CONVERSION FACTORS

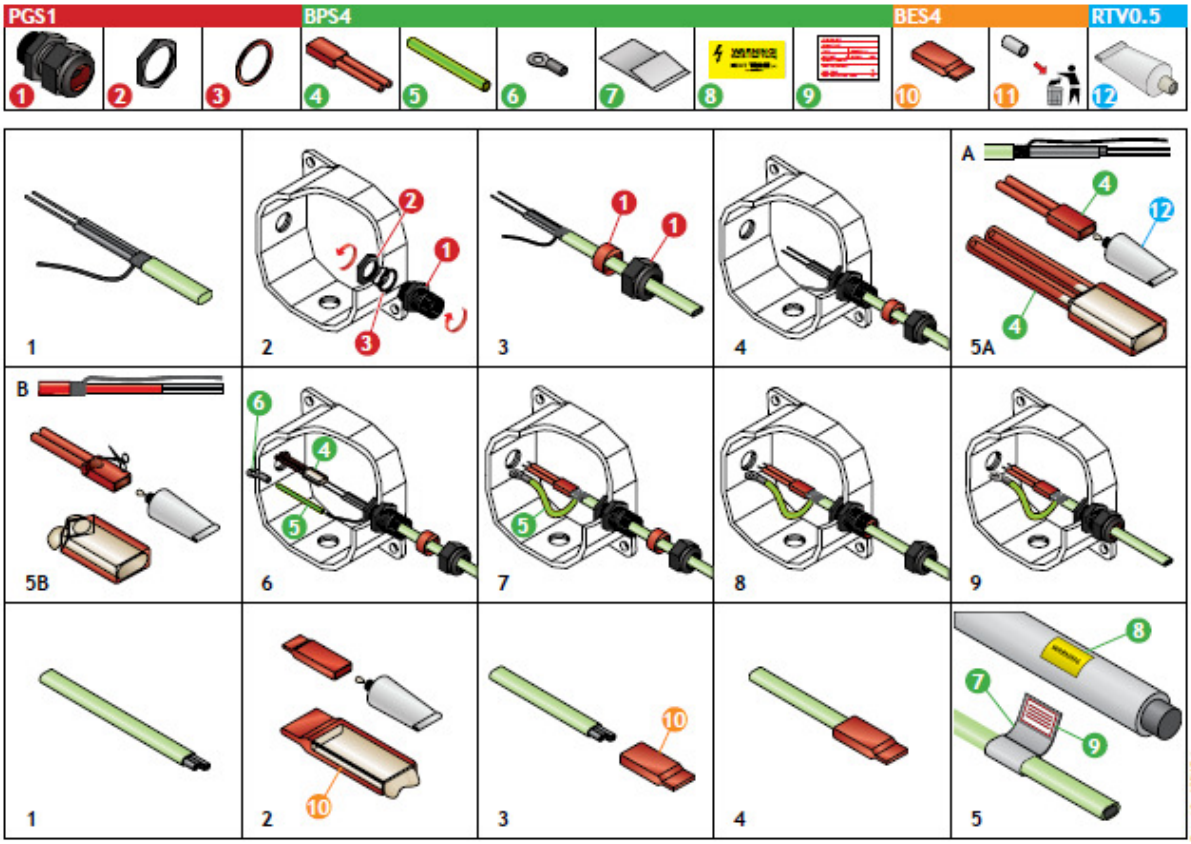
115V HEATING TAPE		230V HEATING TAPE	
277V	Multiply output by 5.80	277V	Multiply output by 1.45
230V	Multiply output by 4.00	240V	Multiply output by 1.09
208V	Multiply output by 3.27	220V	Multiply output by 0.91
120V	Multiply output by 1.09	208V	Multiply output by 0.82
110V	Multiply output by 0.91	115V	Multiply output by 0.25

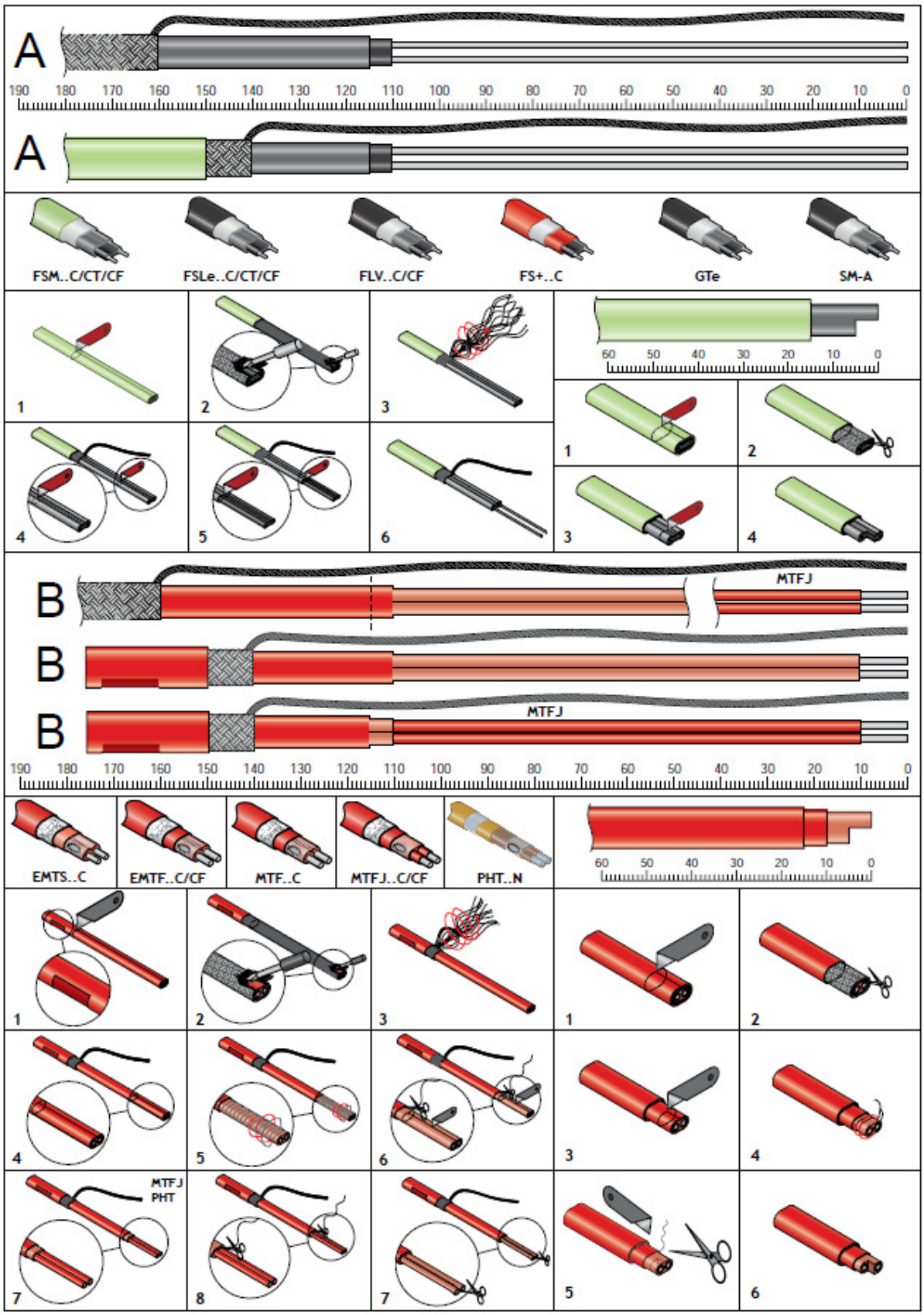
HEAT TRACE™
SETTING THE STANDARDS LEADING THE WAY
Mere's Edge, Chester Road, Helsby, Frodsham, Cheshire, WA6 6DL, UK
Tel: +44(0)1928 726456 Fax: +44(0)1928 727846 http://www.heat-trace.com

HPDS120 07/16

4.3.6 HEATED LINE INSTALLATION AND TERMINATION INSTRUCTIONS


HEAT TRACE
SETTING THE STANDARDS LEADING THE WAY
The Heat Tracing Authority™
www.heat-trace.com
UTK 144
FSM - C
FSM - CT
FSM - CF
FSLe - C
FSLe - CT
FSLe - CF
FLV - C
FLV - CT
FLV - CF
GTE
SM-A
FS+ C
EMTS - C
EMTF - C
EMTF - CF
MTF - C
MTFJ - C
MTFJ - CF
PHT - N
Made in the UK


PGS1
BPS4
BES4
RTV0.5
1
2
3
4
5
6
7
8
9
10
11
12
A
5A
B
5B


A
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
A
FSM..C/CT/CF
FSLe..C/CT/CF
FLV..C/CF
FS+..C
GTe
SM-A
1
2
3
60 50 40 30 20 10 0
1
2
4
5
6
3
4
B
MTFJ
B
B
MTFJ
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
EMTS..C
EMTF..C/CF
MTF..C
MTFJ..C/CF
PHT..N
60 50 40 30 20 10 0
1
2
3
1
2
4
5
6
3
4
MTFJ
PHT
7
8
7
5
6

4.4 INSTRUMENT CONNECTIONS

4.4.1 BIOGAS CONNECTION

Connection to the instrument is by way of a ¼" swagelok bulkhead fitting with retaining lug.

Label: Biogas IN

4.4.2 NITROGEN CONNECTION

Connection to the instrument is by way of a ¼" swagelok bulkhead fitting with retaining lug.

Label: N2 IN

4.4.3 INSTRUMENT AIR INTAKE

The spigot on the rear of the instrument case has a 50mm OD diameter suitable to connect 50mm ID flexible tubing to it.

Label: Instrument Intake

4.4.4 INSTUMENT AIR EXHAUST

The spigot on the rear of the instrument case has a 50mm OD diameter suitable to connect 50mm ID flexible tubing to it.

Label: Instrument Exhaust

4.4.5 VENT

Connection to the instrument is by way of a ¼" swagelok bulkhead fitting with retaining lug.

Label: VENT

4.4.6 POWER

A 3pin kettle lead receptacle with on off switch is located on the rear panel.

Label: POWER 110V

 Danger of Electrocution Switch off and isolate from the mains supply before opening the case.

4.4.7 DATACOMMS

A 12 way circular connector is provided for 4-20mV data output. Colour coded BLUE.

Label: DATA COMMS

4.4.8 ANCILLARY BOX

A 12 way circular connector is provided for ancillary switching services, cabinet fan and water trap power supply. Colour coded RED.

Label: ANCILLARY

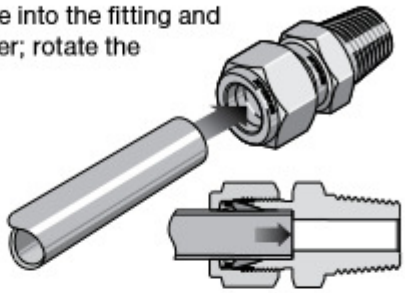
INSTALLATION INSTRUCTIONS

Swagelok Tube Fittings

Up to 1 in./25 mm

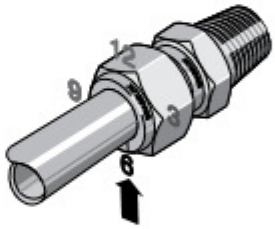
These instructions apply both to traditional fittings and to fittings with the advanced back-ferrule geometry.

Fully insert the tube into the fitting and against the shoulder; rotate the nut finger-tight.



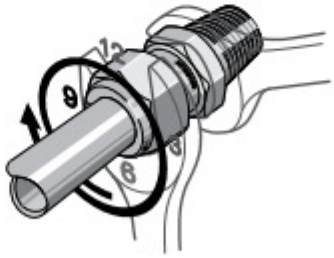
High-pressure applications and high safety-factor systems: *Further tighten the nut until the tube will not turn by hand or move axially in the fitting.*

Mark the nut at the 6 o'clock position.



While holding the fitting body steady, tighten the nut one and one-quarter turns to the 9 o'clock position.

For 1/16, 1/8, and 3/16 in.; 2, 3, and 4 mm tube fittings, tighten the nut three-quarters turn to the 3 o'clock position.



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5.0 POST INSTALLATION CHECK LIST

SYSTEM COMPONENT	Checked ✓
Kiosk bolted down and Sealed	
110V /22A supply connected	
Instrument connected to flex plate & 6A supply	
Instrument power line connected to instrument	
Heated line Thermostat connected to 16A Supply	
Kiosk Fan ventilation connected to Ancillary box	
Kiosk Fan thermostat set to 5C	
Instrument Air Intake connected to Kiosk Instrument Air intake plate	
Instrument Air Exhaust connected to Kiosk Instrument Exhaust plate	
Ancillary box connection made to rear panel of instrument (Red)	
Data Console connected to rear panel of instrument (Blue)	
Biogas Sample line In- connected to rear panel and secure	
N2 line in connected to rear panel and Secure	
Sample Vent line connected to rear panel and secure	
Heated Line set to 60C	
All incoming biogas sample lines isolated with ¼ turn valves	
Kiosk Gas Regulators in correct Orientation	
Solenoid Valves correctly orientated (biogas into NC)	
Solenoid Valves connected to Ancillary box	
Auto-drain Trap connected to Ancillary box	
Auto-drain trap, drain line in place and exit from kiosk secure	
Coalescer in correct orientation	
Flame Arrestor in place and correctly orientated	
Test points sealed with provided caps	
All pipe exits from kiosk suitably tightened and sealed from the inside	
Drain line secured in suitable place to discharge	
Vent line secured at min 3M height - end of line flame arrestor in place	
Tightness Test Completed	
Inlet pressure through regulator set at 35mbar max	
Warning/Advice Labels in place	
Commissioning guide/quick guide in place	