XL-Trace LSZH: Low Smoke Zero Halogen Self-Regulating Heating Cables

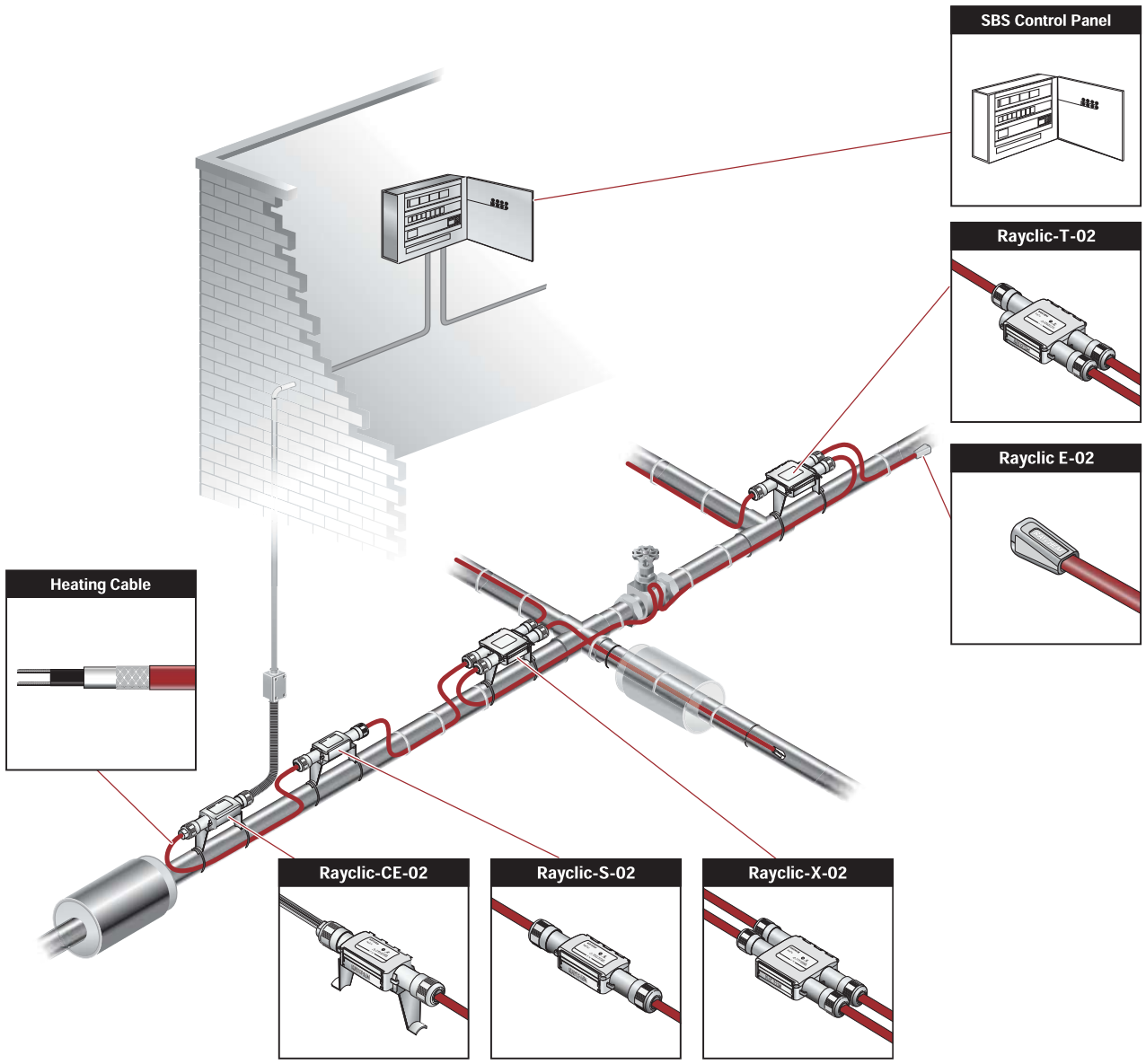
PIPE FREEZE PROTECTION

XL-TRACE LSZH – ENHANCED SAFETY SELF-REGULATING HEATING CABLE

nVent RAYCHEM XL-Trace LSZH heating cables deliver unrivalled safety performance by using innovative materials technology. The new cable range increases resistance to and lowers reaction with fire, delivers low smoke performance, and contains no halogens. These increased safety features make it the safest solution in and around buildings. The unparalleled safety comes without compromise on product performance. The range is fully compatible with the RayClic fast connection devices which make installation quick and easy both onsite, and in modular off-site installations.

nVent RAYCHEM XL-Trace LSZH is simply the safest and most reliable choice for the engineer, for the installer, and for the building owner and occupier.

SYSTEM OVERVIEW

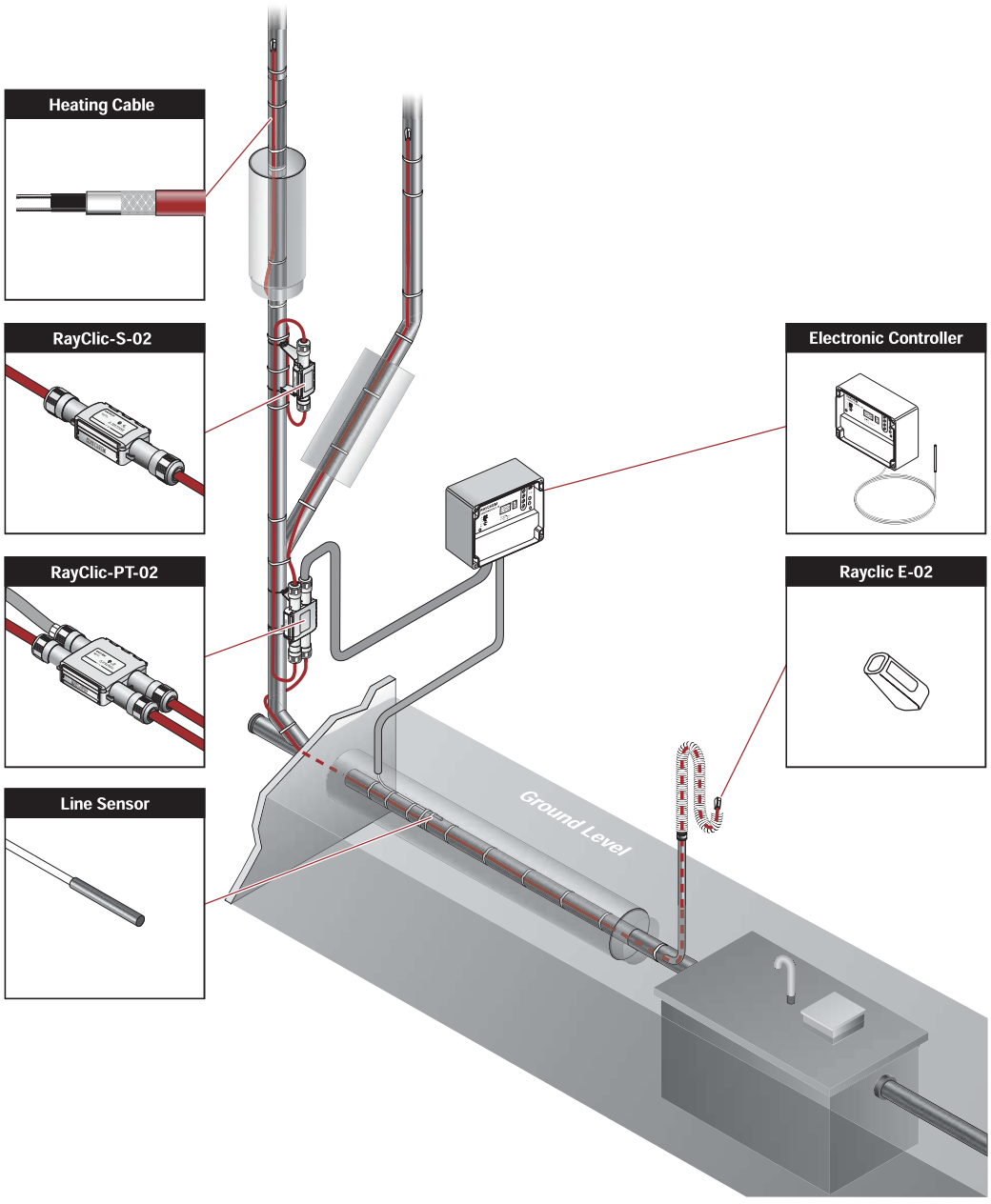


This is a sample overview of pipe freeze protection applications for illustration purposes only, with typical layouts shown on the following pages.

Please contact your local representative for any further design support.

Flow Maintenance (Grease Line)

SYSTEM OVERVIEW

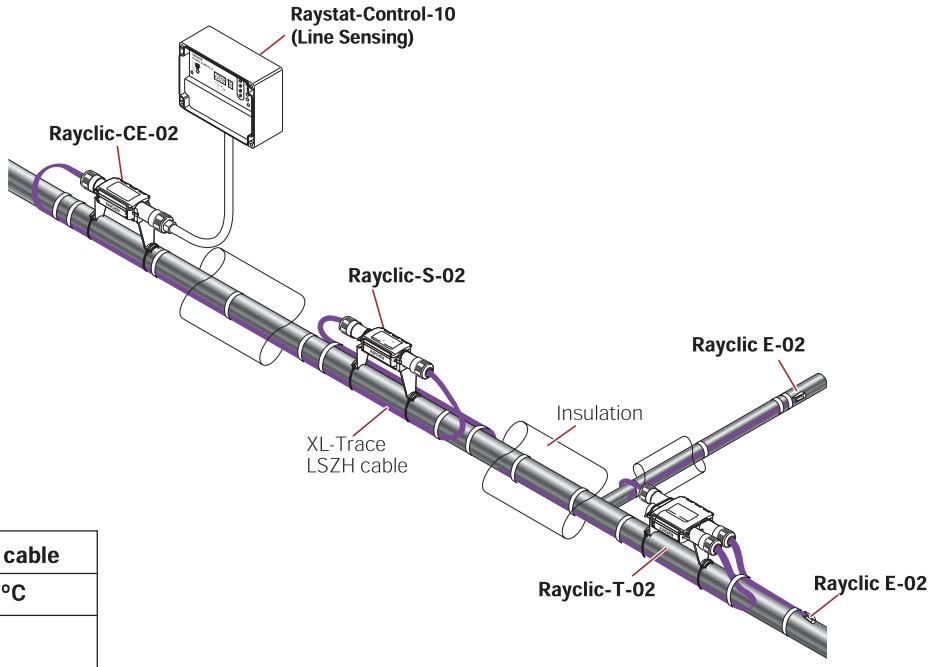


This is a sample overview for flow maintenance of greasy waste pipes for illustration purposes only, with typical layouts shown on the following page.

Please contact your local representative for any further design support.

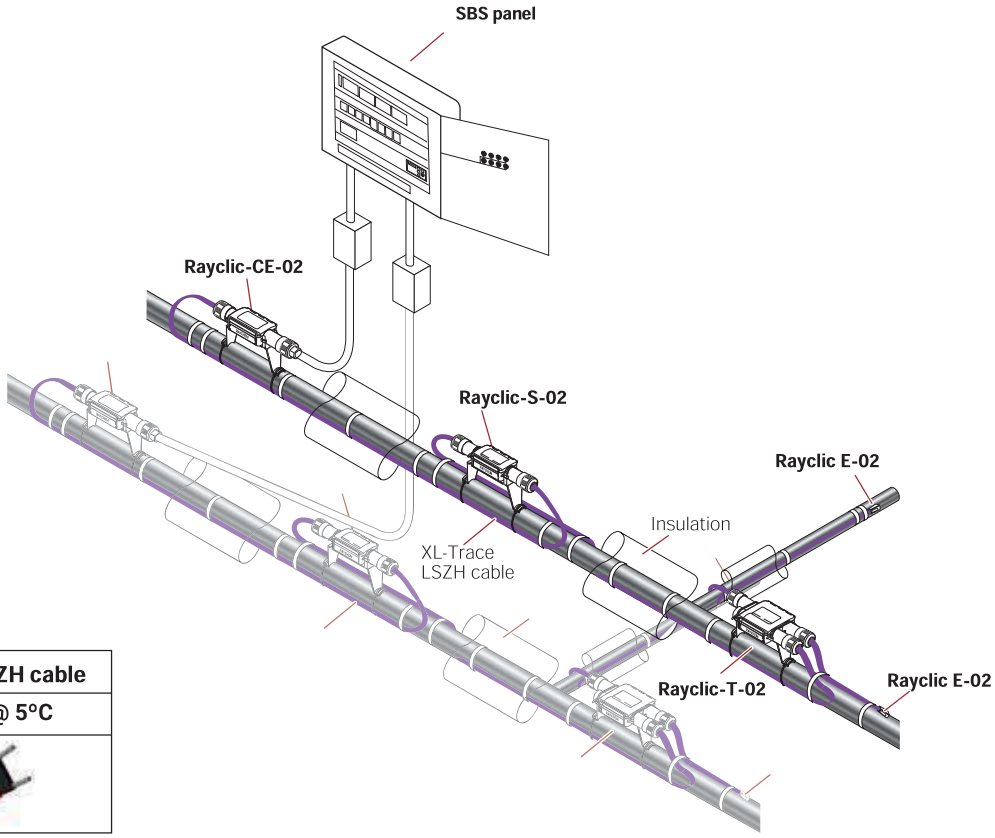
Flow Maintenance (Grease Line)

SINGLE CIRCUIT



XL-Trace LSZH cable
31 W/m @ 5°C

MULTIPLE CIRCUIT (UP TO 12)

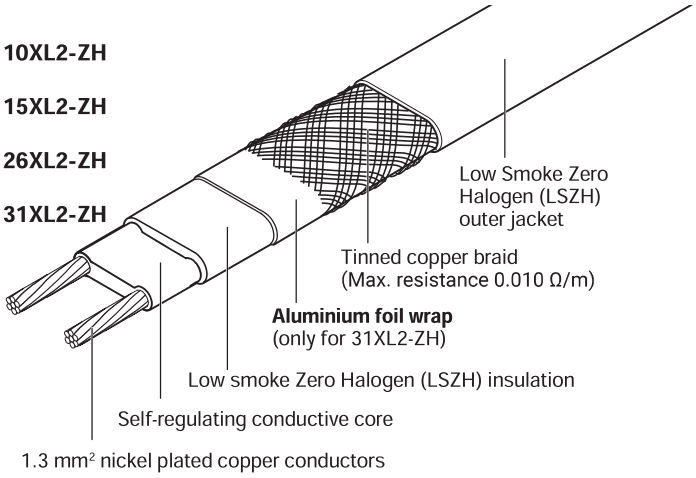


XL-Trace LSZH cable
31 W/m @ 5°C

1 HEATING CABLE SELECTION

Application	
Pipe freeze protection of pipework. Maximum operating temperature 65°C.	
10XL2-ZH	10W/m @ 5°C.
15XL2-ZH	15W/m @ 5°C.
26XL2-ZH	26W/m @ 5°C.
Pipe freeze protection and temperature maintenance. Maximum operating temperature 85°C.	
31XL2-ZH	31W/m @ 5°C.

2 HEATING CABLE CONSTRUCTION



3 PIPE AND INSULATION THICKNESSES

Pipe Freeze Protection at Minimum Ambient Temp –20°C

For more accurate product selection and installation specific data, please use TraceCalc Pro for Buildings.

	Pipe diameter (mm)											
Insulation thicknesses (mm)	15	22	28	35	42	54	67	76	108	125	150	200
10	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH	26XL2-ZH	26XL2-ZH	31XL2-ZH	31XL2-ZH	31XL2-ZH	31XL2-ZH	31XL2-ZH
15	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH	26XL2-ZH	31XL2-ZH	31XL2-ZH	31XL2-ZH
20	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH	31XL2-ZH	31XL2-ZH	31XL2-ZH
25	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH	26XL2-ZH	31XL2-ZH
30	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH	26XL2-ZH
40	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH
50	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	10XL2-ZH	15XL2-ZH	26XL2-ZH	26XL2-ZH

Pipe freeze protection cables XL-Trace LSZH are suitable for any pipe material (copper, threaded pipes, stainless steel pipes, plastic pipes and composite metal pipes) without restriction.

For plastic pipes, please use aluminium adhesive tape ATE-180. The pipe freeze protection cable should be covered along its entire length. Heat insulation λ = 0.035 W/(m.K) or better.

Note: For insulation types containing solvents and/or bitumen coating, use the 31XL2-ZH product.

Fatty Waste pipe size and insulation table

40°C Temperature Maintenance on pipelines for Fatty waste water (Ambient = -10°C)

	Pipe diameter (mm)							
Insulation thicknesses (mm)	42	54	67	76	108	125	150	200
30mm	31XL							
40mm	31XL	31XL						
50mm	31XL	31XL	31XL					
60mm	31XL	31XL	31XL	31XL				
80mm	31XL	31XL	31XL	31XL	31XL			
100mm	31XL	31XL	31XL	31XL	31XL	31XL		
125mm	31XL	31XL	31XL	31XL	31XL	31XL	31XL	
150mm	31XL	31XL	31XL	31XL	31XL	31XL	31XL	31XL

4 CABLE LENGTH

The heating cable should be installed in a straight line on the pipework.Cable loops instead of T-connections can be made on short dead legs. (up to approx. 3 m)

Pipe length
+ approx. 0.3 m per connection
+ approx. 1.0 m per T-connection
+ approx. 1.2 m per 4-way connection
= required heating cable length

Additional cable required for heat sinks such as valves and pipe supports (approx. 1 m each)

5 ELECTRICAL PROTECTION

- The total length of heating cable determines the number and size of the fuses
- Residual current device (rcd) : 30 mA required, max. 500 m heating cable per rcd
- Installation according to local regulations
- The power connections must be carried out by an approved electrical installer
- Use C type circuit-breakers

XL-Trace Maximum Circuit Lengths						
10XL2-ZH (240 Vac)	**Circuit Breaker (C Type characteristic CB Size)**					
Switch-On Temperature (°C)	4	6	10	13	16	20
–20	25	40	75	100	140	180
–10	30	50	90	130	170	190
–5	40	60	110	150	190	200
0	45	70	125	170	210	210
5	50	80	140	195	215	215

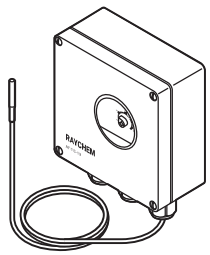
15XL2-ZH (240 Vac)	**Circuit Breaker (C Type characteristic CB Size)**					
Switch-On Temperature (°C)	4	6	10	13	16	20
–20	10	25	50	70	90	120
–10	12	30	60	85	110	145
–5	25	40	70	95	120	155
0	29	45	80	110	135	160
5	35	50	90	120	155	160

26XL2-ZH (240 Vac)	**Circuit Breaker (C Type characteristic CB Size)**					
Switch-On Temperature (°C)	4	6	10	13	16	20
–20	12	12	40	55	80	110
–10	12	25	50	70	100	125
–5	12	30	55	85	110	130
0	12	35	70	100	125	135
5	20	40	80	110	135	135

XL-Trace Maximum Circuit Lengths						
31XL2-ZH (240 Vac)	**Circuit Breaker (C Type characteristic CB Size)**					
Switch-On Temperature (°C)	4	6	10	13	16	20
–20	15	25	50	65	80	105
–10	20	30	55	75	90	115
–5	22	35	59	79	100	118
0	24	38	64	85	105	118
5	26	40	67	88	110	118

6 THERMOSTATS

AT-TS-13

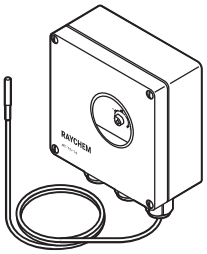


Thermostat

- Adjustable temperature range: –5°C to +15°C
- Ambient thermostat
- Max. switching current 16 A, 250 VAC
- PCN: 728129-000

Note: When selecting the AT-TS- thermostats for direct connection, ensure that the maximum circuit length for a 16A circuit is not exceeded.**

AT-TS-14

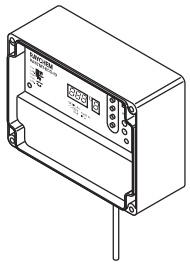


Thermostat

- Adjustable temperature range: 0°C to 120°C
- Temperature maintenance on pipelines for fatty waste water
- Line-sensing control thermostat
- Max. switching current 16 A, 250 VAC
- PCN: 648945-000

Note: When selecting the AT-TS- thermostats, "for direct connection" ensure that the maximum circuit length for a 16A circuit is not exceeded.**

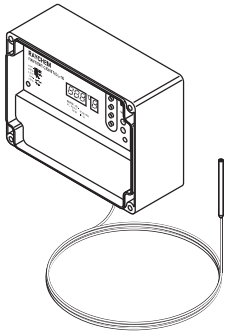
RAYSTAT-ECO-10



Ambient temperature thermostat

- Adjustable temperature range: 0°C to 30°C
- Max. switching current 25 A, 250 VAC
- PASC (Proportional Ambient Sensing Control) for energy saving
- Alarm relay: 2 A voltfree with indication of sensor errors, voltage errors and low or high temperature alarm.
- Display for visual indication of parameters
- PCN: 145232-000

RAYSTAT-CONTROL-10



Line-sensing thermostat

- Adjustable temperature range: 0°C to 150°C
- Max. switching current 25 A, 250 VAC
- Alarm relay: 2 A voltfree with indication of sensor errors, voltage errors and low or high temperature alarm.
- Display for visual indication of parameters
- PCN: 828810-000