eltherm®

# ELSR-HA
## up to 356 °F (180 °C)

## At a Glance

### Applications

Freeze prevention

Temperature maintenance

Pipelines

Silos, vessels, tanks

- Chemistry and Petrochemistry
- Oil and Gas Industry
- Food Processing Industry
- Automotive
- Cryogenic Storage Tanks

### Benefits

- Multiple nominal outputs
- Weather resistant
- UV-resistant

### Designs

BOT Protective braid, Fluoropolymer outer jacket

### Approvals

- Classification
  Class I Div 1, Groups A, B, C, D; T2D/T3*[1]
  Class I Div 2 Groups A, B, C, D; T2D/T3
  Class II Div 1 Groups E, F, G; T2D/T3*[1]
  Class II Div 2 Groups E, F, G; T2D/T3
  Class III Div 1, T2D/T3
  Zone1, AEx 60079-30-1 IIC T2D/T3 Gb
  Zone1, Ex 60079-30-1 IIC T2D/T3 Gb
- Certification
  FM22US0062X
  FM22CA0044X
  CSA C US 2547790
- Standards
  IEC/IEEE 60079-30-1
  IEEE 515/CSA 22.2 130-16
  ANSI/UL 60079-30-1

*[1] with termination kit part no. 09CA051


| | | |
|---|---|---|
| 1 | Bus wire | Nickel plated copper, 16 AWG (1.23 mm²) |
| 2 | Self-regulating heating element | |
| 3 | Insulation | |
| 4 | Protection | Protective braid (Cu, tin plated) |
| 5 | Outer jacket | Fluoropolymer |

## Checklist

Power Connection & End Termination

| | | |
|---|---|---|
| EL-HAZELECT[①] | Heater entry kit for Div1 rated junction box, 3/4" NPT, for ELSR-NA & -HA, Division 1 rated | 09CA051 |
| ELVB-SREx-3/4" BR HT | Power Connection Kit for ELSR-HA, -NA with nickel plated cable gland, 3/4" NPT | 09CA017 |
| ELVB-SREx-20 BR HT | Power Connection Kit ELSR-HA, -NA with nickel plated cable gland, M20 | 09CA008 |
| ELVB-SRAH-3/4" ST | Power Connection Kit ELSR-HA with steel/zinc cable gland / fitting, 3/4" NPT non-hazardous location | 09CA011 |
| ELVB-SRAH | Power Connection kit ELSR-HA without gland | 09CA014 |
| EL-ECSH-ex | End Termination Kit for ELSR-HA | 09CA024 |
| Ex-It-LAG | End of circuit lighted termination incl. mounting post; green | 09CALAG |
| Ex-It-LAR | End of circuit lighted termination incl. mounting post; red | 09CALAR |

[①] Please note the certificate

# Technical Information

| | |
|---|---|
| Min. start up temperature | -22 °F (-30 °C) |
| Max. operating temperature (power on) | 248 °F (120 °C) |
| Max. exposure temperature (de-energized) | 356 °F (180 °C) |
| Nominal voltage | 120 VAC (ELSR-HA-XX-**1**-XX)<br>240 / 277 VAC (ELSR-HA-XX-**2**-XX) |
| Min. Bending radius | 1" (25 mm) |
| Min. Installation temperature | -76 °F (– 60 °C) |
| Usage rating | Wet rated, for outdoor use (-WS) |

# Heating Circuit Length

Heating circuit length factor 208 V vs. 240 V › 1.00

## 120 VAC

| Start up temp. [°C] | Nominal CB rating [A] | Heating circuit length [ft] ELSR-HA-3-1 | ELSR-HA-7-1 | ELSR-HA-10-1 | ELSR-HA-15-1 | ELSR-HA-20-1 |
|---|---|---|---|---|---|---|
| 50 °F (10 °C) | 10 | 209 | 112 | 92 | 58 | 42 |
| | 15 | 307 | 167 | 138 | 86 | 63 |
| | 20 | 307 | 223 | 185 | 116 | 85 |
| | 25 | 307 | 225 | 204 | 145 | 106 |
| | 30 | 307 | 225 | 204 | 160 | 127 |
| | 35 | 307 | 225 | 204 | 160 | 135 |
| | 40 | 307 | 225 | 204 | 160 | 135 |
| 32 °F (0 °C) | 10 | 200 | 107 | 89 | 56 | 40 |
| | 15 | 300 | 161 | 133 | 83 | 60 |
| | 20 | 307 | 215 | 178 | 111 | 80 |
| | 25 | 307 | 225 | 204 | 139 | 100 |
| | 30 | 307 | 225 | 204 | 160 | 120 |
| | 35 | 307 | 225 | 204 | 160 | 135 |
| | 40 | 307 | 225 | 204 | 160 | 135 |
| 14 °F (-10 °C) | 10 | 192 | 103 | 86 | 54 | 38 |
| | 15 | 288 | 155 | 128 | 81 | 58 |
| | 20 | 307 | 207 | 170 | 107 | 76 |
| | 25 | 307 | 225 | 204 | 134 | 95 |
| | 30 | 307 | 225 | 204 | 160 | 114 |
| | 35 | 307 | 225 | 204 | 160 | 134 |
| | 40 | 307 | 225 | 204 | 160 | 135 |
| -22 °F (-30 °C) | 10 | 178 | 97 | 79 | 50 | 34 |
| | 15 | 266 | 145 | 118 | 75 | 52 |
| | 20 | 307 | 194 | 158 | 100 | 70 |
| | 25 | 307 | 225 | 198 | 126 | 87 |
| | 30 | 307 | 225 | 204 | 150 | 104 |
| | 35 | 307 | 225 | 204 | 160 | 122 |
| | 40 | 307 | 225 | 204 | 160 | 135 |

## 240 VAC

| Start up temp. [°C] | Nominal CB rating [A] | Heating circuit length [ft] ELSR-HA-3-2 | ELSR-HA-7-2 | ELSR-HA-10-2 | ELSR-HA-15-2 | ELSR-HA-20-2 |
|---|---|---|---|---|---|---|
| 50 °F (10 °C) | 10 | 519 | 243 | 170 | 104 | 78 |
| | 15 | 697 | 365 | 255 | 156 | 117 |
| | 20 | 697 | 473 | 340 | 207 | 155 |
| | 25 | 697 | 473 | 391 | 259 | 194 |
| | 30 | 697 | 473 | 391 | 301 | 233 |
| | 35 | 697 | 473 | 391 | 301 | 259 |
| | 40 | 697 | 473 | 391 | 301 | 259 |
| 32 °F (0 °C) | 10 | 488 | 229 | 161 | 99 | 74 |
| | 15 | 697 | 343 | 242 | 149 | 110 |
| | 20 | 697 | 457 | 322 | 198 | 147 |
| | 25 | 697 | 473 | 391 | 247 | 184 |
| | 30 | 697 | 473 | 391 | 297 | 221 |
| | 35 | 697 | 473 | 391 | 301 | 258 |
| | 40 | 697 | 473 | 391 | 301 | 259 |
| 14 °F (-10 °C) | 10 | 461 | 216 | 153 | 94 | 70 |
| | 15 | 691 | 323 | 229 | 142 | 105 |
| | 20 | 697 | 431 | 306 | 189 | 140 |
| | 25 | 697 | 473 | 382 | 237 | 175 |
| | 30 | 697 | 473 | 391 | 284 | 210 |
| | 35 | 697 | 473 | 391 | 301 | 245 |
| | 40 | 697 | 473 | 391 | 301 | 259 |
| -22 °F (-30 °C) | 10 | 414 | 194 | 138 | 87 | 64 |
| | 15 | 622 | 291 | 208 | 130 | 95 |
| | 20 | 697 | 388 | 278 | 174 | 127 |
| | 25 | 697 | 473 | 347 | 217 | 159 |
| | 30 | 697 | 473 | 391 | 261 | 191 |
| | 35 | 697 | 473 | 391 | 301 | 222 |
| | 40 | 697 | 473 | 391 | 301 | 254 |

Heating circuit lengths on the following conditions

- Voltage 120 VAC (-1-) / 240 VAC (-2-) / 277 VAC (-2-)
- MCB type QO (100% utilisation)
- Voltage drop max. 10%
- Single heater fed from 1 end

# Heating Circuit Length

277 VAC

| Start up temp. [°C] | Nominal CB rating [A] | Heating circuit length [ft] ELSR-HA-3-2 | ELSR-HA-7-2 | ELSR-HA-10-2 | ELSR-HA-15-2 | ELSR-HA-20-2 |
|---|---|---|---|---|---|---|
| 50 °F (10 °C) | 10 | 571 | 298 | 185 | 120 | 102 |
| | 15 | 856 | 447 | 276 | 180 | 153 |
| | 20 | 1115 | 596 | 368 | 240 | 204 |
| | 25 | 1115 | 744 | 461 | 300 | 255 |
| | 30 | 1115 | 847 | 553 | 360 | 306 |
| | 35 | 1115 | 847 | 645 | 420 | 357 |
| | 40 | 1115 | 847 | 730 | 479 | 408 |
| 32 °F (0 °C) | 10 | 537 | 280 | 174 | 114 | 97 |
| | 15 | 805 | 420 | 261 | 172 | 145 |
| | 20 | 1074 | 560 | 348 | 229 | 193 |
| | 25 | 1115 | 700 | 436 | 286 | 242 |
| | 30 | 1115 | 840 | 522 | 343 | 290 |
| | 35 | 1115 | 847 | 609 | 400 | 338 |
| | 40 | 1115 | 847 | 697 | 458 | 386 |
| 14 °F (-10 °C) | 10 | 507 | 265 | 165 | 109 | 91 |
| | 15 | 760 | 396 | 248 | 164 | 138 |
| | 20 | 1014 | 528 | 330 | 219 | 184 |
| | 25 | 1115 | 661 | 413 | 274 | 230 |
| | 30 | 1115 | 793 | 496 | 329 | 275 |
| | 35 | 1115 | 847 | 578 | 384 | 321 |
| | 40 | 1115 | 847 | 661 | 438 | 368 |
| -22 °F (-30 °C) | 10 | 456 | 237 | 150 | 101 | 84 |
| | 15 | 684 | 357 | 224 | 151 | 125 |
| | 20 | 912 | 475 | 299 | 201 | 167 |
| | 25 | 1115 | 594 | 374 | 252 | 209 |
| | 30 | 1115 | 712 | 449 | 302 | 251 |
| | 35 | 1115 | 831 | 523 | 352 | 292 |
| | 40 | 1115 | 847 | 599 | 402 | 334 |

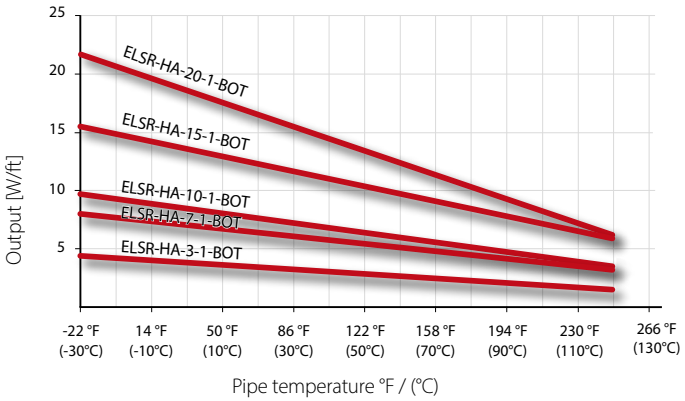
# Power Output

Nominal output factor
208 V vs. 240 V › 0.74

120 VAC

ELSR-HA-xx-1-BOT Power

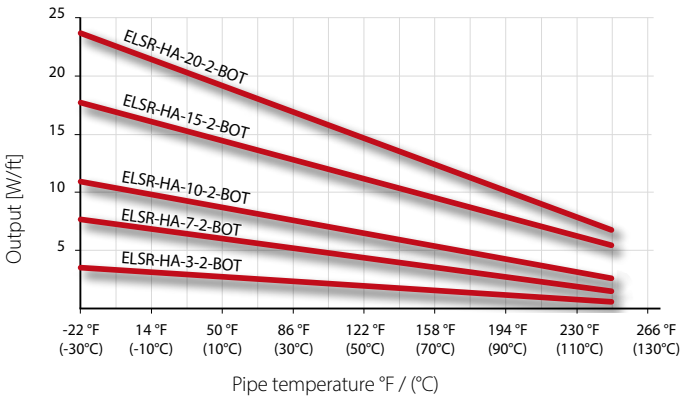
(on insulated metallic pipes, in accordance with IEEE 515/CSA 22.2 130-16)




240 VAC

ELSR-HA-xx-2-BOT Power

(on insulated metallic pipes, in accordance with IEEE 515/CSA 22.2 130-16)




# Ordering Information

| Type | Nominal output [W/ft at 50°F] (10 °C) | WxH approx. [mm] | Weight approx. [g/ft] | Article - No. |
|---|---|---|---|---|
| ELSR-HA-3-1-BOT | 3 W/ft | 12.4 x 5.9 | 37 | BA221101 |
| ELSR-HA-3-2-BOT | 3 W/ft | 12.4 x 5.9 | 37 | BA221103 |
| ELSR-HA-7-1-BOT | 7 W/ft | 12.4 x 5.9 | 37 | BA221201 |
| ELSR-HA-7-2-BOT | 7 W/ft | 12.4 x 5.9 | 37 | BA221203 |
| ELSR-HA-10-1-BOT | 10 W/ft | 12.4 x 5.9 | 37 | BA221301 |
| ELSR-HA-10-2-BOT | 10 W/ft | 12.4 x 5.9 | 37 | BA221303 |
| ELSR-HA-15-1-BOT | 15 W/ft | 12.4 x 5.9 | 37 | BA221451 |
| ELSR-HA-15-2-BOT | 15 W/ft | 12.4 x 5.9 | 37 | BA221453 |
| ELSR-HA-20-1-BOT | 20 W/ft | 12.4 x 5.9 | 37 | BA221601 |
| ELSR-HA-20-2-BOT | 20 W/ft | 12.4 x 5.9 | 37 | BA221603 |

277 VAC

ELSR-HA-xx-2-BOT Power

(on insulated metallic pipes, in accordance with IEEE 515/CSA 22.2 130-16)