

# Q-OUTDOOR SAFE

## Outdoor Temperature Sensor NEMA 4X Weatherproof Enclosure

### FEATURES

- Durable NEMA 4X/IP66 injection-molded watertight enclosure
- Quick Connect wire terminals eliminate wire nuts
- NTC thermistors, RTD elements or Temperature Transmitters available
- Built in 1/2" NPT conduit connection on bottom
- Additional 1/2" NPT conduit adapter included for access on either side of sensor
- Compatible with most control systems
- CE & RoHS compliant
- 5 year limited warranty
- Made in the USA



### GENERAL INFORMATION

The Tasseron Outdoor Safe Box is a high quality outdoor air temperature sensor in a watertight, NEMA 4X plastic enclosure.

Available measuring elements interface with most major control manufacturers. Accurate interchangeable thermistors and RTD's ensure low drift and are double encapsulated to guarantee the highest reliability.

The internally hinged cover and snap-in mounting flange on the back allows for fast temperature response while making installation easy.

### SPECIFICATIONS

|                 |   |
|-----------------|---|
| Enclosure:      | NEMA 4X/IP66, UV resistant injection-molded polycarbonate, UL 94 V-2                                      |
| Cover:          | Quick snap with hinges and screw down ability   |
| Mounting:       | Quick mount bracket system with snap in place to housing  |
| Connection:     | 2-pole AWG 22-16 / 0.35 - 1.5mm spring-loaded, Quick Connect wire terminals                               |
| Sensor Element: | Interchangeable NTC thermistor, 2-wire<br>RTD Pt100, Pt1000, 2-wire<br>RTD Ni1000-891, Ni1000-TC5, 2 wire |

## SPECIFICATIONS CONT.

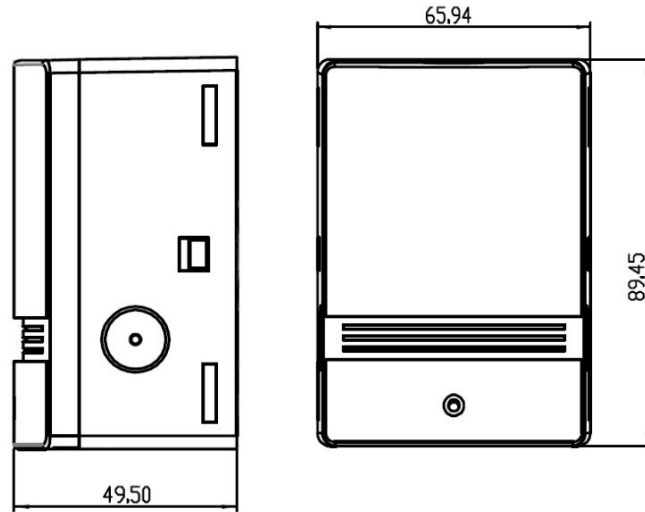
|               |   |
|---------------|---|
| Sensor Value: | NTC 10K Ohm type 2 @ 25°C / 77°F<br>NTC 10K Ohm type 3 @ 25°C / 77°F<br>NTC 20K Ohm @ 25°C / 77°F<br>NTC 3K Ohm @ 25°C / 77°F<br>RTD Pt1000 1000 Ohm @ 0°C / 32°F<br>RTD Pt100 100 Ohm @ 0°C / 32°F<br>RTD Ni1000-891 891 Ohm @ 0°C / 32°F<br>RTD Ni1000-TC5 1000 Ohm @ 0°C / 32°F<br>(Other elements on request) |
| Accuracy:     | NTC thermistor 0...70°C ± 0.2°C / 32...158°F ± 0.36°F<br>Pt100 / Pt1000 Class B IEC751, ± 0.3°C / ± 0.5°F @ 0°C / 32°F<br>Ni1000 DIN 43760, ± 0.5°C / ± 0.9°F @ 0°C / 32°F  |
| Range:        | -40...105°C / -40...221°F   |

### For Temperature Transmitter Only:

|                      |   |
|----------------------|---|
| Transmitter Element: | Pt1000 IEC 751  |
| Loop Supply Voltage: | 8 - 36 VDC, 100 Ohm load 10.5 - 36 VDC, 250 Ohm load 14.25 - 36 VDC   |
| Supply Current:      | 4 - 20mA  |
| Resolution:          | 0.05% FSR   |
| Accuracy:            | 0.1% - 0.4% FSR   |
| Connection:          | 2-pole AWG 22-16 / 0.35 - 1.5mm <sup>2</sup> spring-loaded, Quick Connect wire terminals                                      |
| Operating Env.       | -25°C- 50°C   |
| Temp. Ranges:        | Range 1      0°C - 100°C / 32°F - 212°F<br>Range 2      -7°C - 49°C / 20°F - 120°F<br>Range 3      -18°C - 38°C / 0°F - 100°F |
| Dimensions:          | 40mm X 19mm   |
| Short Circuit Det.   | < 840 Ohm   |
| Open Circuit Det.    | > 1500 Ohm  |
| Fault Current:       | >22.5 mA  |

|              |                          |
|--------------|--------------------------|
| Approval:    | CE & RoHS compliant      |
| Warranty:    | 5 year limited warranty  |
| Accessories: | 1/2" NPT conduit adapter |

**DIMENSIONS (in mm)**



**ORDERING INFORMATION**

**HOW TO BUILD A TASSERON Q-OUTDOOR SAFE PART NUMBER**

Sample Part Number (THTOSA00) —Q-Outdoor Safe sensor with 10k Type 2 element.

**T            H            T            O            S            A            00**

| Tasseron | HVAC | Temp | Duct | Box                                  | Element              | Details     |
|----------|------|------|------|--------------------------------------|----------------------|-------------|
|          |      |      |      |                                      | A—10K -2             | 00—No probe |
|          |      |      |      |                                      | B—10K -3             |             |
|          |      |      |      |                                      | C—20K                |             |
|          |      |      |      |                                      | D—3K                 |             |
|          |      |      |      |                                      | E—Pt1000             |             |
|          |      |      |      |                                      | F—Ni1000-891         |             |
|          |      |      |      |                                      | G—10K-4              |             |
|          |      |      |      |                                      | H— Pt100             |             |
|          |      |      |      |                                      | I—4.7K               |             |
|          |      |      |      | *Other elements available on request | J—10K-3 (11K)        |             |
|          |      |      |      |                                      | K— Ni1000-TC5        |             |
|          |      |      |      |                                      | <b>Transmitters:</b> |             |
|          |      |      |      |                                      | T—Range 1            |             |
|          |      |      |      |                                      | 32°F– 212°F          |             |
|          |      |      |      |                                      | U—Range 2            |             |
|          |      |      |      |                                      | 20°F– 120°F          |             |
|          |      |      |      |                                      | V—Range 3            |             |
|          |      |      |      |                                      | 0°F– 100°F           |             |

# HVAC temperature measuring elements

## R/T TABLES

| Temp |     | NTC thermistors |                |                |            |           | RTD elements |            |         |            |
|------|-----|-----------------|----------------|----------------|------------|-----------|--------------|------------|---------|------------|
|      |     | curve A         | curve B        | curve G        | curve C    | curve D   | curve E      | curve F    | curve H | curve K    |
|      |     | NTC 10K type 2  | NTC 10K type 3 | NTC 10K type 4 | NTC 20KOhm | NTC 3KOhm | Pt1000/B     | Ni1000-891 | Pt100/B | Ni1000-TC5 |
| °C   | °F  | R (kOhm)        | R (kOhm)       | R (kOhm)       | R (kOhm)   | R (kOhm)  | R (Ohm)      | R (Ohm)    | R (Ohm) | R (Ohm)    |
| -40  | -40 | 341.4           | 242.1          | 191.9          | 784.6      | 97.40     | 843          | 697        | 84.3    | 831        |
| -35  | -31 | 246.2           | 181.0          | 146.6          | 558.8      | 71.53     | 862          | 719        | 86.2    | 851        |
| -30  | -22 | 179.5           | 136.6          | 112.9          | 402.7      | 52.80     | 882          | 743        | 88.2    | 872        |
| -25  | -13 | 132.2           | 103.9          | 87.59          | 293.6      | 39.16     | 902          | 766        | 90.2    | 893        |
| -20  | -4  | 98.34           | 79.64          | 68.47          | 216.3      | 29.24     | 922          | 790        | 92.2    | 914        |
| -15  | 5   | 73.73           | 61.54          | 53.91          | 160.7      | 22.04     | 941          | 815        | 94.1    | 935        |
| -10  | 14  | 55.78           | 47.91          | 42.74          | 120.5      | 16.74     | 961          | 839        | 96.1    | 956        |
| -5   | 23  | 42.59           | 37.57          | 34.11          | 91.07      | 12.79     | 980          | 864        | 98.0    | 978        |
| 0    | 32  | 32.82           | 29.66          | 27.40          | 69.40      | 9.856     | 1000         | 891        | 100.0   | 1000       |
| 5    | 41  | 25.52           | 23.57          | 22.14          | 53.33      | 7.663     | 1020         | 916        | 102.0   | 1022       |
| 10   | 50  | 19.97           | 18.85          | 17.99          | 41.28      | 5.999     | 1039         | 942        | 103.9   | 1045       |
| 15   | 59  | 15.75           | 15.17          | 14.72          | 32.18      | 4.729     | 1058         | 968        | 105.8   | 1068       |
| 20   | 68  | 12.51           | 12.28          | 12.09          | 25.28      | 3.754     | 1078         | 994        | 107.8   | 1091       |
| 25   | 77  | 10.00           | 10.00          | 10.00          | 20.00      | 3.000     | 1097         | 1021       | 109.7   | 1114       |
| 30   | 86  | 8.048           | 8.184          | 8.308          | 15.92      | 2.416     | 1117         | 1048       | 111.7   | 1138       |
| 35   | 95  | 6.516           | 6.735          | 6.936          | 12.75      | 1.957     | 1136         | 1075       | 113.6   | 1162       |
| 40   | 104 | 5.306           | 5.577          | 5.819          | 10.27      | 1.595     | 1155         | 1102       | 115.5   | 1186       |
| 45   | 113 | 4.345           | 4.641          | 4.904          | 8.320      | 1.307     | 1175         | 1130       | 117.5   | 1210       |
| 50   | 122 | 3.578           | 3.877          | 4.151          | 6.779      | 1.076     | 1194         | 1158       | 119.4   | 1235       |
| 55   | 131 | 2.962           | 3.261          | 3.529          | 5.556      | 0.888     | 1213         | 1187       | 121.3   | 1260       |
| 60   | 140 | 2.464           | 2.756          | 3.012          | 4.577      | 0.737     | 1232         | 1216       | 123.2   | 1285       |
| 65   | 149 | 2.060           | 2.340          | 2.582          | 3.788      | 0.616     | 1252         | 1245       | 125.2   | 1311       |
| 70   | 158 | 1.730           | 1.996          | 2.221          | 3.150      | 0.518     | 1271         | 1274       | 127.1   | 1337       |
| 75   | 167 | 1.460           | 1.707          | 1.918          | 2.630      | 0.441     | 1290         | 1304       | 129.0   | 1364       |
| 80   | 176 | 1.236           | 1.466          | 1.663          | 2.206      | 0.377     | 1309         | 1334       | 130.9   | 1390       |
| 85   | 185 | 1.051           | 1.264          | 1.446          | 1.857      | 0.324     | 1328         | 1365       | 132.8   | 1417       |
| 90   | 194 | 0.896           | 1.095          | 1.262          | 1.570      | 0.278     | 1347         | 1396       | 134.7   | 1444       |
| 95   | 203 | 0.767           | 0.952          | 1.105          | 1.333      | 0.239     | 1366         | 1427       | 136.6   | 1472       |
| 100  | 212 | 0.659           | 0.831          | 0.970          | 1.136      | 0.206     | 1385         | 1459       | 138.5   | 1500       |
| 105  | 221 | 0.569           | 0.728          | 0.855          | 0.972      | 0.179     | 1404         | 1491       | 140.4   | 1528       |
| 110  | 230 | 0.493           | 0.640          | 0.755          | 0.834      | 0.156     | 1423         | 1524       | 142.3   | 1557       |
| 115  | 239 | 0.428           | 0.564          | 0.669          | 0.719      | 0.136     | 1442         | 1556       | 144.2   | 1586       |
| 120  | 248 | 0.374           | 0.499          | 0.594          | 0.621      | 0.119     | 1461         | 1590       | 146.1   | 1615       |
| 125  | 257 | 0.327           | 0.443          | 0.529          | 0.539      | 0.105     | 1479         | 1623       | 147.9   | 1645       |

\* Other elements on request

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