



Terminal boxes

TNCN



The TNCN range comprises many standard sizes of enclosures manufactured in stainless steel 316L for maximum environmental protection. The main box is manufactured from 1.5 mm sheet. Cable entries can be made on all sides or onto optional gland plates. Multiple boxes of same or different size may be flanged together as a compact unit. If your need is for a particular size or requirement, BARTEC TECHNOR also offers tailor made sizes and solutions.

Features

- Flexible product range with many standard sizes
- Custom size or design on request
- Wide drain flange design to avoid accumulation of water or debris
- Hinged with screws from size 20 x 20 cm
- Standard IP66 ingress protection, IP67 and IP68 on request
- Multiple grounding points
- Approved for intrinsically safe circuits
- Control equipment
- Self-limiting heating cable for anti-condensation protection
- May be combined as connection box for flameproof applications
- Temperature range -50 °C to + 200 °C
- ATEX, IECEx, INMETRO, CSA and TR-CU approved

Applications

The TNCN range of stainless steel 316L enclosures are designed for use in any environment where an explosive atmosphere may be present, and are especially recommended for chemical agent environments, seawater corrosion and extremes of low and high temperature.



Explosion protection

| | |
|-----------------------|--|
| Marking | Ex e IIC T6/T5/T4 / Ex [ia] IIC T6 Gb Ex tD A21 T85 °C - T110 °C Db ⊕ II 2 G/D and EPL Gb/Db |
| Certification ATEX | DNV-2008-OSL-ATEX-42438U DNV-2001-OSL-ATEX-0176X |
| IECEx | IECEx DNV 09.0005U IECEx DNV 09.0004X |
| INMETRO | DNV 16.0023U DNV 16.0022 |
| CSA | CSA 2036776 |
| EAC | TC RU C- NO-GB08-B-01133 |
| Directives | EN/IEC 60079-0, EN/IEC 60079-7, EN/IEC 61241-0, EN/IEC 61241-1 |

Technical data

| | |
|--------------------|---|
| Material | Stainless steel 316L |
| IP rating | IP 66 (IP 67 and IP 68 upon request) |
| Temperature | -50 °C to +40 °C (T5) -50 °C to +60 °C (T6/T4) |
| Cover gasket | Silicone (operating temp. -50 °C to +200 °C) |
| Surface treatment | Acid pickle |
| Material thickness | min. 1.5 mm |
| Earthing | Internal earth bar/bracket External earth bolt |
| Options | Quick locks, Gland plates, Multi Transit Conduit, Window, electro polished or painted surface |

An ignition temperature is the temperature at which a hot surface will cause an ignition to occur in a given atmosphere. Dependent on the type of gas or dust, the maximum temperature that any surface in the terminal box can reach without a spontaneous ignition is known as the 'T Class'. The maximum surface temperature must always be lower than the ignition temperature of the atmosphere in which it is used. The terminal boxes within the TNCN range has been assigned a maximum heat dissipation relating to the ambient temperature and T-Class. The TNCN range offers T6, T5 and T4 protection:

- T4 = Maximum 135 °C
(Internal wiring must have a temperature rating of at least 110 °C)
- T6 = Maximum 85 °C



Theoretical values are calculated based upon typical configurations. Maximum power must not be exceeded in any given terminal box. Maximum current per terminal must be calculated using the Maximum Heat Dissipation. For some applications it may be necessary to have a variety of terminal sizes. The following tables and examples demonstrate how this is achieved. The power heat dissipation determines the maximum number of terminals permissible for any size of terminal box, based on a 100 % load. In example 2, the total load has exceeded the maximum 100 % value. Therefore, the required size and number of terminals cannot be fitted within this terminal box. If the load exceeds the maximum value simply select a larger size terminal box within the range and repeat the process until the total load value is within 100 % value.

Maximum heat dissipation

| Type No. | Max. dissipated power at $T_a = 40\text{ °C}$ |
|----------|---|
| 121009 | 6 W |
| 151510 | 15 W |
| 202012 | 20 W |
| 202017 | 20 W |
| 302017 | 30 W |
| 282817 | 30 W |
| 383817 | 40 W |
| 575717 | 90 W |

Example 1 TNCN 282817A

| Terminal/conductor size (mm ²) | Current (Amps) | Number of terminals | Load = 100 % maximum |
|--|----------------|---------------------|----------------------|
| 1.5 | 10 | 18 (of max. 33) | 54.54 % |
| 2.5 | 16 | 8 (of max. 33) | 24.24 % |
| 4 | 20 | 6 (of max. 33) | 18.18 % |
| Total load | | | 96.96 % |

Example 2 TNCN 282822A

| Terminal/conductor size (mm ²) | Current (Amps) | Number of terminals | Load = 100 % maximum |
|--|----------------|---------------------|----------------------|
| 1.5 | 10 | 18 (of max. 33) | 54.54 % |
| 2.5 | 16 | 10 (of max. 33) | 30.30 % |
| 4 | 20 | 6 (of max. 33) | 18.18 % |
| Total load | | | 103.02 % |



Note: In the shaded area you can add as many terminals as physically possible, provided the maximum load of 100 % is not exceeded. For loads on terminals below 4A, the quantity will be limited by the available space inside the box. There is no restriction in the numbers of terminals. The temperature class will then be T6 (85 °C). Care must be taken to ensure that the size of the chosen enclosure can accommodate the cable bending radius.

Terminal sizes (mm²)

| 1210XX | 1,5 | 2,5 | 4 | 6 |
|-------------|-----|-----|----|----|
| Current (A) | 10 | 15 | | |
| | 16 | 6 | 10 | |
| | 20 | | 6 | 10 |
| | 25 | | | 6 |

| 1515XX | 1,5 | 2,5 | 4 | 6 | 10 |
|-------------|-----|-----|----|----|----|
| Current (A) | 10 | 37 | | | |
| | 16 | 16 | 25 | | |
| | 20 | | 16 | 25 | |
| | 25 | | | 16 | 25 |
| | 31 | | | | 18 |
| | 35 | | | | |
| | 43 | | | | 21 |
| | | | | | 15 |

| 2828XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 |
|-------------|-----|-----|----|----|----|----|----|
| Current (A) | 10 | 33 | | | | | |
| | 16 | 13 | 33 | | | | |
| | 20 | | 21 | 33 | | | |
| | 25 | | | 21 | 33 | | |
| | 31 | | | | 30 | | |
| | 35 | | | | | 27 | |
| | 43 | | | | | 17 | |
| | 52 | | | | | | 17 |
| | 65 | | | | | | 11 |
| | 96 | | | | | | 11 |

| 3020XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 |
|-------------|-----|-----|----|----|----|----|----|
| Current (A) | 10 | 25 | | | | | |
| | 16 | 10 | 16 | | | | |
| | 20 | | 10 | 17 | | | |
| | 25 | | | 11 | 16 | | |
| | 31 | | | | 11 | | |
| | 35 | | | | | 15 | |
| | 43 | | | | | | 9 |
| | 52 | | | | | | 10 |
| | 65 | | | | | | 6 |
| | 96 | | | | | | 6 |

| 3838XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 |
|-------------|-----|-----|----|----|----|----|----|
| Current (A) | 10 | 33 | | | | | |
| | 16 | 13 | 22 | | | | |
| | 20 | | 14 | 23 | | | |
| | 25 | | | 14 | 22 | | |
| | 31 | | | | 14 | | |
| | 35 | | | | | 20 | |
| | 43 | | | | | 12 | |
| | 52 | | | | | | 13 |
| | 65 | | | | | | 8 |
| | 96 | | | | | | 8 |

| 3845XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 |
|-------------|-----|-----|----|----|----|----|----|
| Current (A) | 10 | 41 | | | | | |
| | 16 | 16 | 27 | | | | |
| | 20 | | 17 | 29 | | | |
| | 25 | | | 18 | 27 | | |
| | 31 | | | | 18 | | |
| | 35 | | | | | 25 | |
| | 43 | | | | | 16 | |
| | 52 | | | | | | 16 |
| | 65 | | | | | | 10 |
| | 96 | | | | | | 10 |

| 3857xx | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 |
|-------------|-----|-----|----|----|----|----|----|
| Current (A) | 10 | 54 | | | | | |
| | 16 | 21 | 36 | | | | |
| | 20 | | 23 | 38 | | | |
| | 25 | | | 24 | 36 | | |
| | 31 | | | | 24 | | |
| | 35 | | | | | 32 | |
| | 43 | | | | | 20 | |
| | 52 | | | | | | 21 |
| | 65 | | | | | | 13 |
| | 96 | | | | | | 13 |

Terminal sizes (mm²)

| 7695XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|
| Current (A) | 10 | 153 | | | | | | | | |
| | 16 | 60 | 62 | | | | | | | |
| | 20 | | 40 | 64 | | | | | | |
| | 25 | | | 40 | 60 | | | | | |
| | 31 | | | | 40 | | | | | |
| | 35 | | | | | 54 | | | | |
| | 43 | | | | | 35 | | | | |
| | 52 | | | | | | 37 | | | |
| | 65 | | | | | | 24 | | | |
| | 96 | | | | | | | 23 | | |
| | 120 | | | | | | 15 | 18 | | |
| | 135 | | | | | | | 14 | 25 | |
| | 210 | | | | | | | | 10 | 12 |

| 95114XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|
| Current (A) | 10 | 184 | | | | | | | | |
| | 16 | 72 | 75 | | | | | | | |
| | 20 | | 48 | 77 | | | | | | |
| | 25 | | | 48 | 72 | | | | | |
| | 31 | | | | 48 | | | | | |
| | 35 | | | | | 64 | | | | |
| | 43 | | | | | 42 | | | | |
| | 52 | | | | | | 45 | | | |
| | 65 | | | | | | 28 | | | |
| | 96 | | | | | | | 28 | | |
| | 120 | | | | | | 18 | 21 | | |
| | 135 | | | | | | | 17 | 30 | |
| | 210 | | | | | | | | 12 | 15 |

| 5757XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|
| Current (A) | 10 | 75 | | | | | | | | |
| | 16 | 30 | 50 | | | | | | | |
| | 20 | | 32 | 52 | | | | | | |
| | 25 | | | 33 | 50 | | | | | |
| | 31 | | | | 33 | | | | | |
| | 35 | | | | | 45 | | | | |
| | 43 | | | | | 29 | | | | |
| | 52 | | | | | | 30 | | | |
| | 65 | | | | | | 19 | | | |
| | 96 | | | | | | | 19 | | |
| | 120 | | | | | | 12 | 12 | | |
| | 135 | | | | | | | 10 | 16 | |
| | 210 | | | | | | | | 6 | 7 |

| 95152XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 | 185 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|-----|
| Current (A) | 10 | 96 | | | | | | | | | |
| | 16 | 36 | 61 | | | | | | | | |
| | 20 | | 40 | 63 | | | | | | | |
| | 25 | | | 40 | 61 | | | | | | |
| | 31 | | | | 40 | | | | | | |
| | 35 | | | | | 54 | | | | | |
| | 43 | | | | | 35 | | | | | |
| | 52 | | | | | | 38 | | | | |
| | 65 | | | | | | 24 | | | | |
| | 96 | | | | | | | 24 | | | |
| | 120 | | | | | | 15 | 18 | | | |
| | 135 | | | | | | | 14 | 26 | | |
| | 210 | | | | | | | | 10 | 13 | |
| | 234 | | | | | | | | | 10 | 16 |
| | 250 | | | | | | | | | 9 | 15 |

| 5776XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|
| Current (A) | 10 | 102 | | | | | | | | |
| | 16 | 36 | 37 | | | | | | | |
| | 20 | | 24 | 38 | | | | | | |
| | 25 | | | 24 | 36 | | | | | |
| | 31 | | | | 24 | | | | | |
| | 35 | | | | | 32 | | | | |
| | 43 | | | | | 21 | | | | |
| | 52 | | | | | | 22 | | | |
| | 65 | | | | | | 14 | | | |
| | 96 | | | | | | | 14 | | |
| | 120 | | | | | | 9 | 10 | | |
| | 135 | | | | | | | 8 | 15 | |
| | 210 | | | | | | | | 6 | 7 |

| 100200XX | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 35 | 50 | 95 | 150 | 185 | 240 | 300 |
|-------------|-----|-----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Current (A) | 10 | 50 | | | | | | | | | | | |
| | 16 | 32 | 50 | | | | | | | | | | |
| | 20 | | 32 | 51 | | | | | | | | | |
| | 25 | | | 32 | 50 | | | | | | | | |
| | 31 | | | | 32 | | | | | | | | |
| | 35 | | | | | 43 | | | | | | | |
| | 43 | | | | | 28 | | | | | | | |
| | 52 | | | | | | 30 | | | | | | |
| | 65 | | | | | | 19 | | | | | | |
| | 96 | | | | | | | 20 | | | | | |
| | 120 | | | | | | | 12 | 15 | | | | |
| | 135 | | | | | | | | 12 | 22 | | | |
| | 210 | | | | | | | | | 9 | 11 | | |
| | 234 | | | | | | | | | | 10 | 12 | 15 |
| | 250 | | | | | | | | | | 8 | 13 | |



TNCN dimension table – range of stocked boxes

| Type | Width (cm) | Height (cm) | Depth (cm) | Volume (dm ³) | Weight (kg) |
|-----------|------------|-------------|------------|---------------------------|-------------|
| 121009** | 12 | 10 | 9 | 1.08 | 1.2 |
| 151510** | 15 | 15 | 10 | 2.25 | 1.8 |
| 20201202A | 20 | 20 | 12 | 4.8 | 2.7 |
| 20201702A | 20 | 20 | 17 | 6.8 | 3.2 |
| 30201702A | 30 | 20 | 17 | 10.2 | 5 |
| 28281702A | 28 | 28 | 17 | 13.3 | 5.2 |
| 38381702A | 38 | 38 | 17 | 24 | 7.1 |
| 38382902A | 38 | 38 | 29 | 41.8 | 10.1 |
| 38451702A | 38 | 45 | 17 | 29 | 8.7 |
| 38571702A | 38 | 57 | 17 | 36.8 | 10.6 |
| 57571702A | 57 | 57 | 17 | 55.2 | 15.9 |

** No hinges – screws only

Other sizes are available upon request. The boxes are delivered as standard with left hinged cover secured to the enclosure by screws. Quicklocks, screws only, or other systems can be delivered upon request.

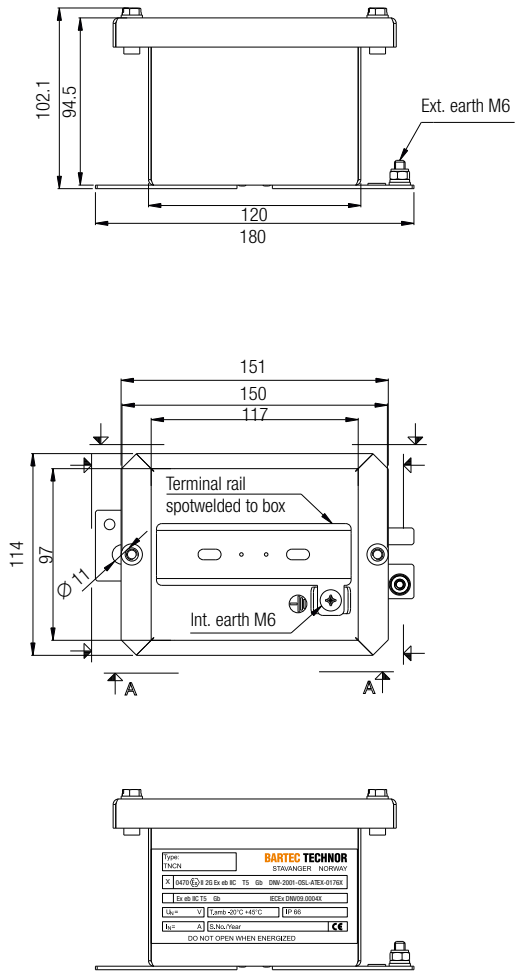
Entry matrix

| Width (cm) | Depth (cm) | M20 | M25 |
|------------|------------|-----|-----|
| 15 | 10 | 8 | 6 |
| | 15 | 12 | 9 |
| | 20 | 16 | 12 |
| | 27 | 24 | 15 |
| 20 | 12 | 10 | 10 |
| | 17 | 15 | 15 |
| | 22 | 25 | 20 |
| | 29 | 35 | 30 |
| 30 | 12 | 15 | 14 |
| | 17 | 24 | 21 |
| | 22 | 40 | 28 |
| | 29 | 56 | 42 |
| 38 | 12 | 20 | 18 |
| | 17 | 30 | 27 |
| | 22 | 50 | 36 |
| | 29 | 70 | 54 |
| 40 | 12 | 22 | 18 |
| | 17 | 3 | 27 |
| | 22 | 55 | 36 |
| | 29 | 77 | 54 |
| 45 | 12 | 24 | 20 |
| | 17 | 36 | 30 |
| | 22 | 60 | 40 |
| | 29 | 84 | 60 |
| 57 | 12 | 32 | 26 |
| | 17 | 48 | 39 |
| | 22 | 80 | 52 |
| | 29 | 128 | 78 |
| 76 | 12 | 42 | 36 |
| | 17 | 63 | 54 |
| | 22 | 105 | 72 |
| | 29 | 147 | 108 |

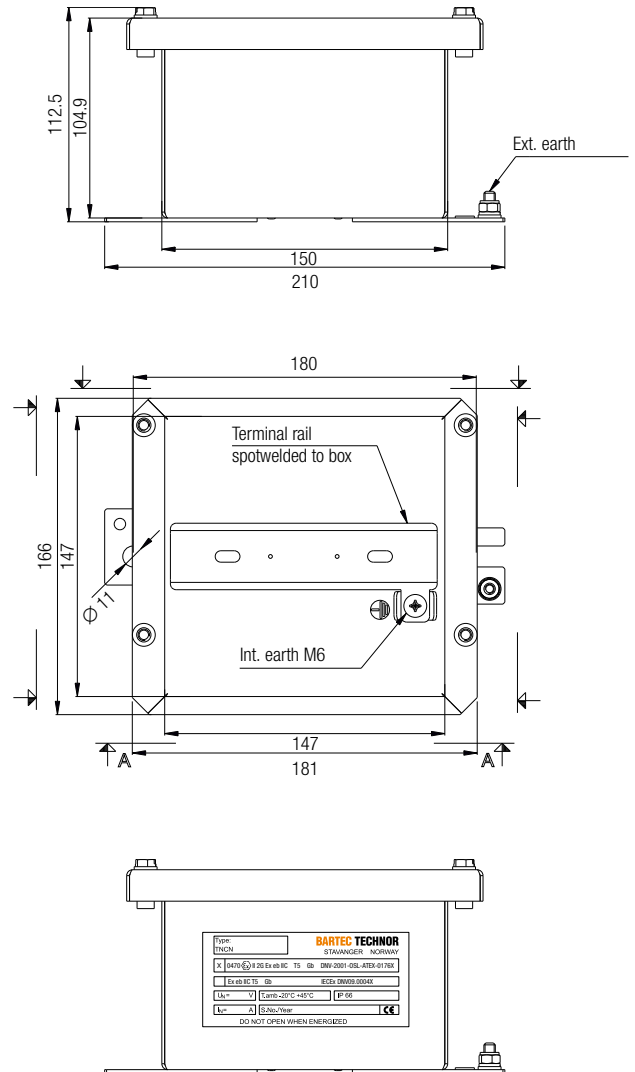
The table is a guidance for the maximum quantity of glands for installation in one face (the Width column in the table) on TNCN terminal boxes.

Note! Recommended quantity is 2/3 of guided quantity. MCT-frames can be fitted in boxes with a minimum depth of 20 cm.

Dimensions TNCN121009



Dimensions TNCN 151510



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