

Junction boxes and cabinets TNCN

Stainless steel 316L for use in zone 1



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 / 2 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 AS also offers tailor made sizes and solutions.

The boxes are approved for intrinsically safe circuits and may also be combined as a connection box for flameproof applications. ATEX, IECEx, INMETRO and TR CU approved.

- 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, IP67 and IP68 ingress protection

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 ATEX	Ex e IIC T6/T5/T4 / Ex [ia] IIC T6 Gb ⊕ II 2 G EPL Gb
Certification ATEX	DNV-2008-OSL-ATEX-42438U DNV-2001-OSL-ATEX-0176X
Certification IECEx	IECEX DNV 09.0005U IECEX DNV 09.0004X
INMETRO	DNV 16.0022X
EAC	TC RU C-NO.BH02.B.00219_19
Directives	EN/IEC 60079-0, EN/IEC 60079-7

Other approvals and certificates, see www.bartec.com

Technical data

Material	Stainless steel 316L
IP/NEMA rating	IP 66 IP 67 IP 68 2m 0,5h IP 68 / NEMA 4X 8m 3h (on 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 pickled
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

Calculating Terminal Box Heat Dissipation and Number of Terminals TNCN

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 °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)	1.5	2.5	4	
Current (Amps)	10	16	20	
Number of terminals (of max. 33)	18	8	6	Total load
Load = 100 % maximum	54.54 %	24.24 %	18.18 %	96.96 %

Example 2 (TNCN 282822A)

Terminal / conductor size (mm ²)	1.5	2.5	4	
Current (Amps)	10	16	20	
Number of terminals (of max. 33)	18	8	6	Total load
Load = 100 % maximum	54.54 %	30.30 %	18.18 %	103.02 %



Typical Terminal Load Configuration

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

	Current (A)	Terminal size (in mm ²)													
		1.5	2.5	4	5	6	10	16	35	50	95	150	185	240	300
1210XX	10	15													
	10	15													
	16	6	10												
	20		6	10											
	25			6	10										
1515XX	10	37													
	16	16	25												
	20		16	25											
	25			16		25									
	31					18									
	35							21							
	43								15						

	Current (A)	Terminal size (in mm ²)													
		1.5	2.5	4	5	6	10	16	35	50	95	150	185	240	300
2828XX	10	33													
	16	13	16												
	20		10	17											
	25			11		16									
	31					11									
	35						15								
	43						9								
	52							10							
	65							6							
	96								6						
3020XX	10	33													
	16	13	22												
	20		14	23											
	25			14		22									
	31					14									
	35						20								
	43						12								
	52							13							
	65							8							
	96								8						
3838XX	10	33													
	16	13	22												
	20		14	23											
	25			14		22									
	31					14									
	35						20								
	43						12								
	52							13							
	65							8							
	96								8						
3845XX	10	41													
	16	16	27												
	20		17	29											
	25			18		27									
	31					18									
	35						25								
	43						16								
	52							16							
	65							10							
	96								10						
3857XX	10	54													
	16	21	36												
	20		23	38											
	25			24		36									
	31					20									
	35						32								
	43						20								
	52							21							
	65							13							
	96								13						

	Current (A)	Terminal size (in mm ²)													
		1.5	2.5	4	5	6	10	16	35	50	95	150	185	240	300
7695XX	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			
5757XX	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			
5776XX	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			
95114XX	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			

	Current (A)	Terminal size (in mm ²)													
		1.5	2.5	4	5	6	10	16	35	50	95	150	185	240	300
95152XX	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		
100200XX	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

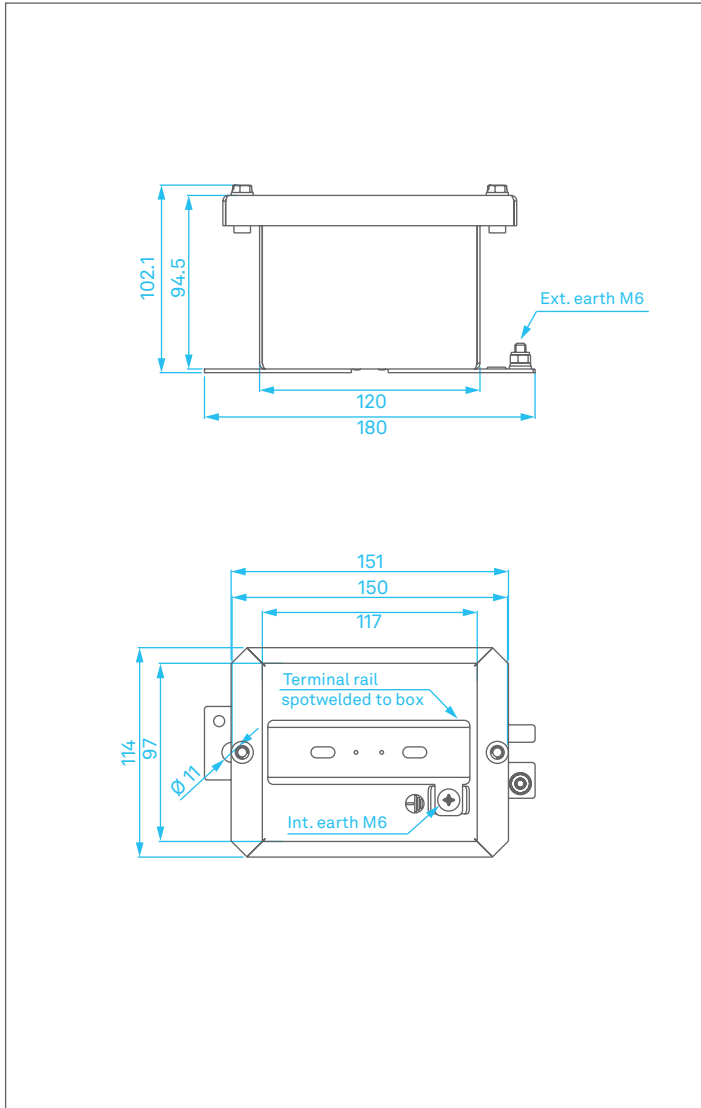
Width (cm)	Depth (cm)	M20	M25
15	10	8	6
	15	12	9
	20	16	12
	27	24	15
20	12	10	10
	17	15	15
	22	25	20
	29	35	30
30	12	15	14
	17	24	21
	22	40	28
	29	56	42
38	12	20	18
	17	30	27
	22	50	36
	29	70	54
40	12	22	18
	17	3	27
	22	55	36
	29	77	54
45	12	24	20
	17	36	30
	22	60	40
	29	84	60
57	12	32	26
	17	48	39
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



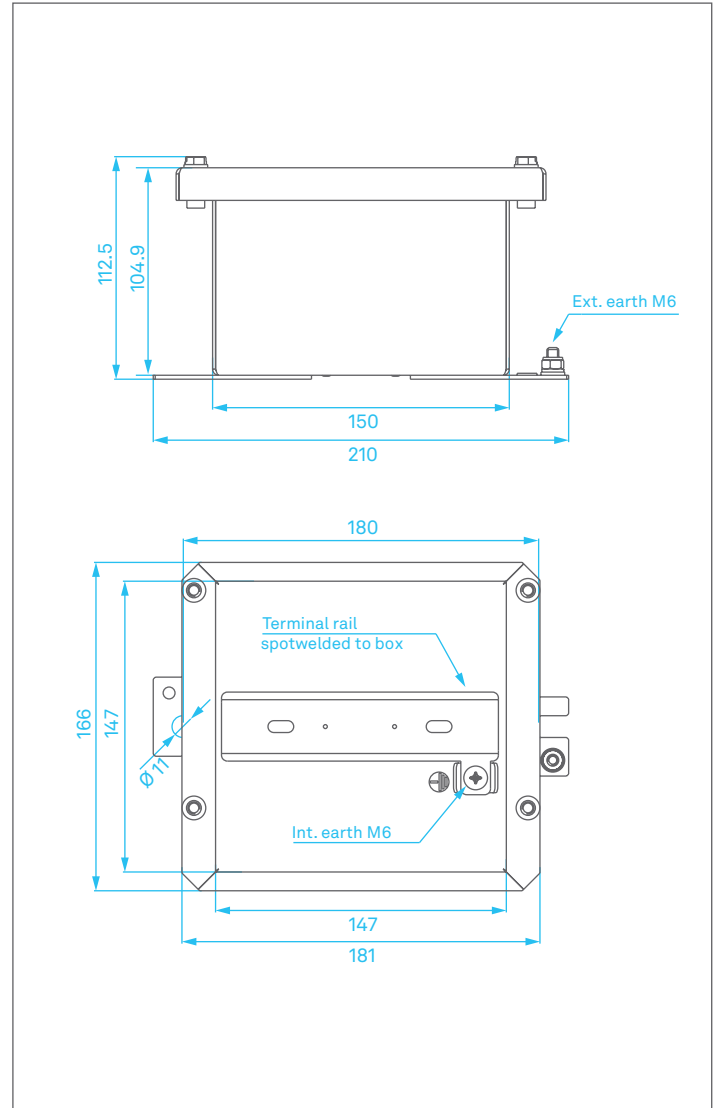
The table is a guidance for the maximum quantity of glands for installation in one face (the Width column in the table) on TNCN terminal boxes.

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

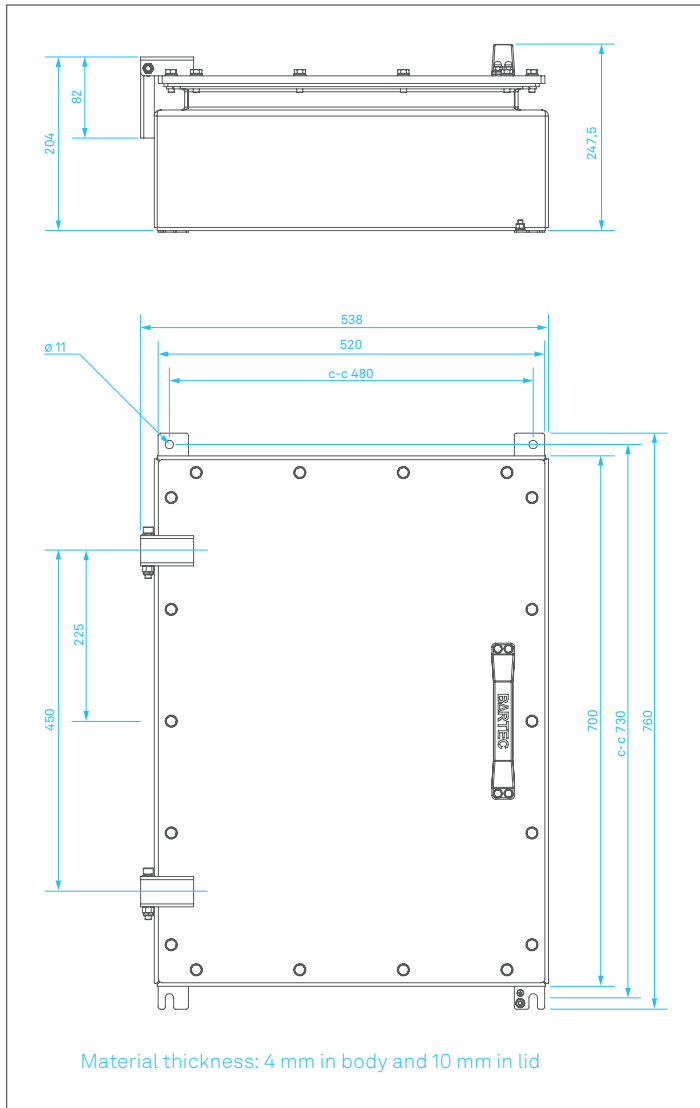
Dimensions TNCN 121009



Dimensions TNCN 151510



Dimensions TNCN 527020 - IP68 8m version



Dimensions TNCN 383820 - IP68 8m version

