



Quick Connect Boxes Inside Gloveboxes

The ULC quick connect junction boxes are the essential elements to optimize the cabling inside gloveboxes.

Large range ■ For sizes 3 & 4 ULC connectors
Up to 8 connectors on 1 box
Custom built: make your junction boxes according to your specifications with 4 sets of components

Designed for nuclear applications ■ Stainless steel
Radiation withstanding materials (VITON®, PEEK...)

Sealed ■ IP55

Junction box



Description

- Quick connect junction boxes
- For ULC Push-Pull connectors
- Up to 8 connectors on one box

Applications

- In gloveboxes where multiple connections are needed
- Wiring optimization by grouping up to 8 connections in one main cable and thus reducing the number of feedthroughs needed on the glovebox walls

Technical features

	Junction box Part				
	Box body & cover	Cable sealing	Cable clamps	Flat sealing gasket	Connectors
Materials	Stainless steel	Viton®	PEEK	Viton®	Refer to ULC brochure

Overview - Application

Cabling optimization

The quick connect junction boxes are used in gloveboxes to optimize and rationalize the cabling. They allow grouping ULC Series connectors of a same size.

The boxes are to be fixed on the inner walls of the gloveboxes. A complete junction box features 4 different sets of components described on page 4.

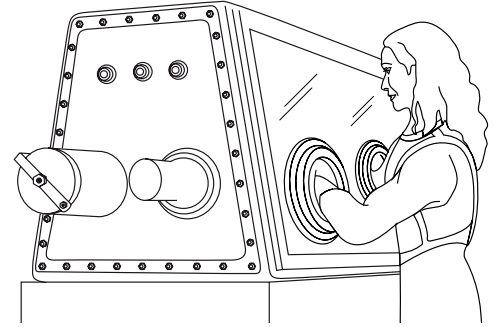


Features & benefits

Field proven

A connector range dedicated to the nuclear industry

The ULC range has been installed in gloveboxes and hot cells around the world for decades. With standard and remote manipulated versions, this range addresses the high level of requirements associated with nuclear fuel production, fuel reprocessing and waste management industries, as well as experimental facilities.



Approved quality assurance program

SOURIAU quality assurance program meets international & nuclear standards:

- ISO/EN 9001 2000
- ASME NQA-1 2000 (10 CFR 50 App. B)
- 10CFR21

UL certified

ULC connectors

The junction boxes are part of the SOURIAU ULC Series. The connectors of this range are recognized by Underwriters Laboratory Inc.® as compliant with the UL 1977 standard (Component Connectors for Use in Data, Signal, Control and Power Applications).



Build your box according to your specification

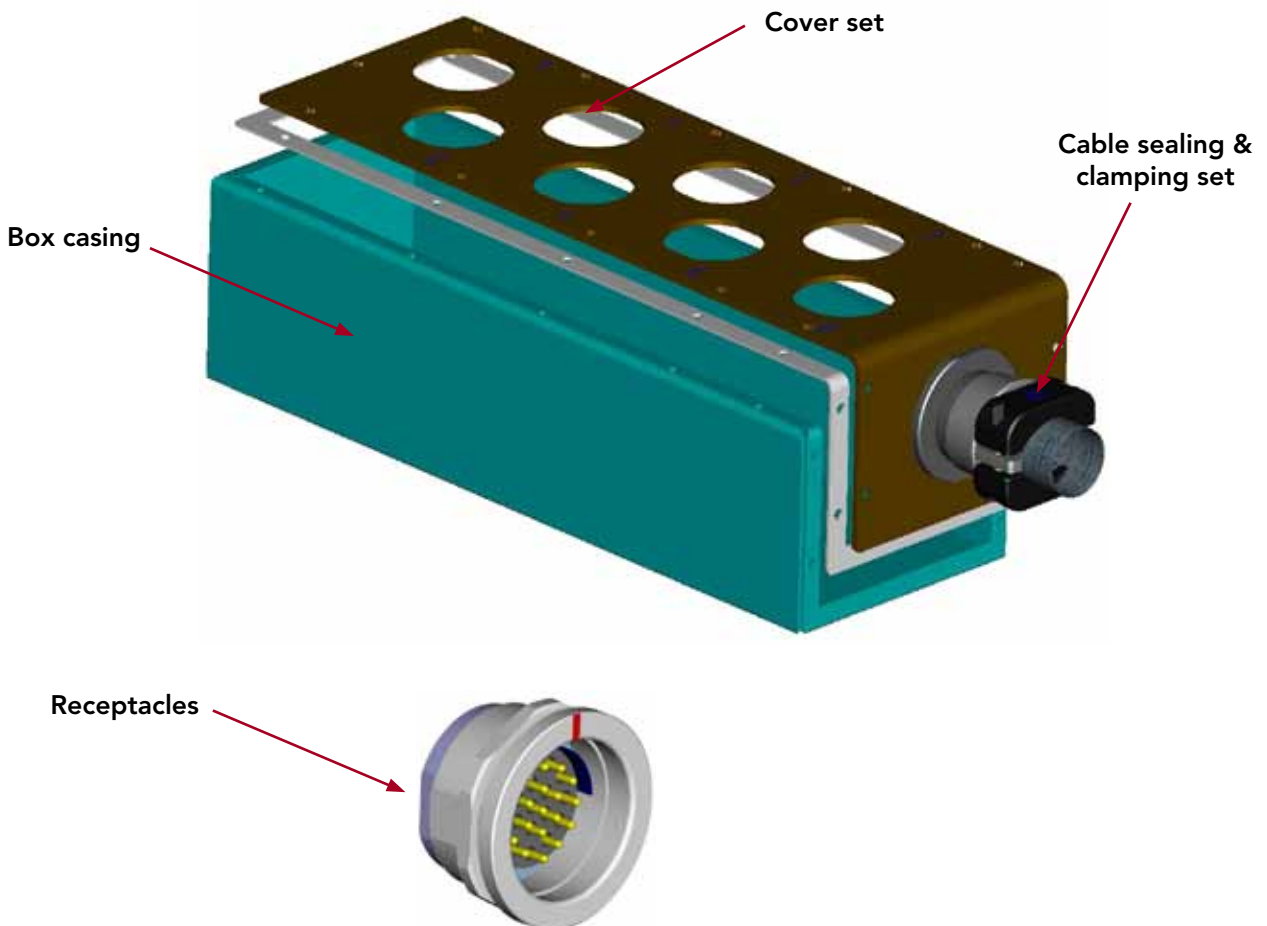
Sets description

The SOURIAU nuclear junction box offers maximum flexibility.

The box can be built to your specifications by assembling the unit using the following 4 sets of components.

The 4 sets are:

- Set 1 - Box cover (includes box cover, flat sealing gasket and cover fixing screws)
- Set 2 - Box casing
- Set 3 - Cable sealing gland and clamp
- 2 to 8 ULC round flange receptacles (RE type – see page 9)

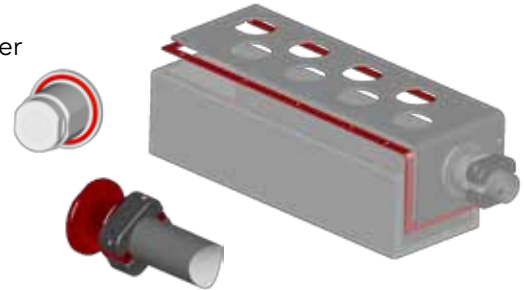


Product overview

Sealing

The junction boxes are IP55 sealed. The sealing is achieved through:

- An O-ring for the sealing of the receptacle mounted on the box cover
- A VITON® gasket for the sealing of the cover to the box casing
- A sealing gland for the sealing of the cable leaving the box



Grounding

Grounding

- The metallic collar enables to connect the grounding cable with the junction box casing
- A pin welded on the side of the junction box casing enables a way to link the box to the glovebox structure



Heavy duty high quality fabrication

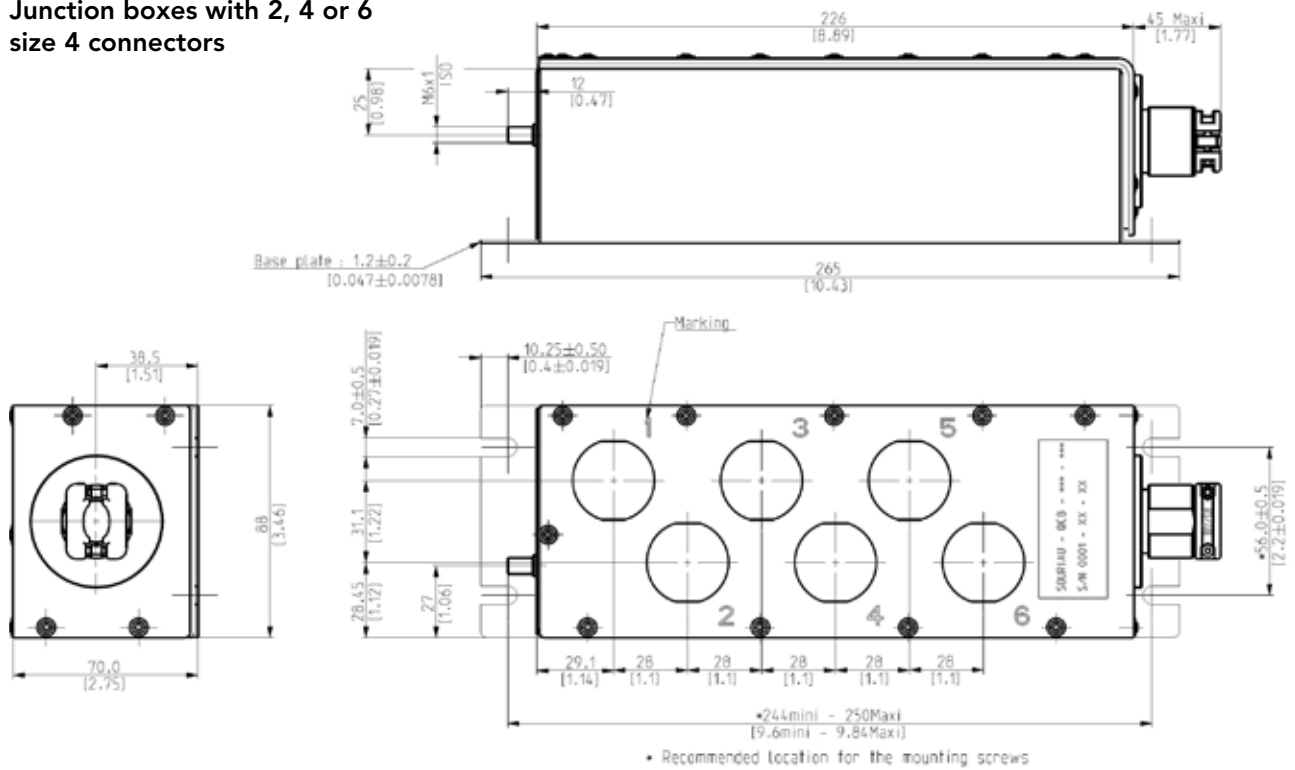
The boxes are laser welded and offer a high level of mechanical resistance. A high quality finish is thus obtained.



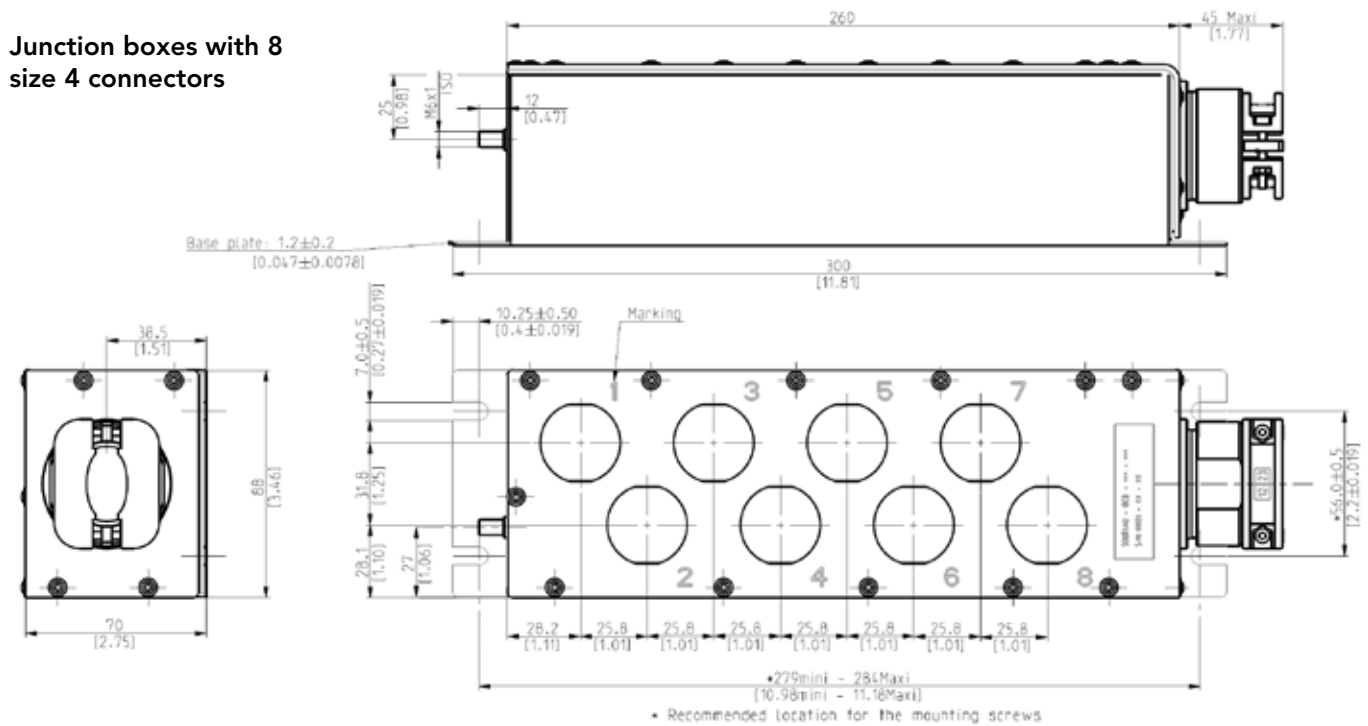
Product details

Dimensions

Junction boxes with 2, 4 or 6 size 4 connectors



Junction boxes with 8 size 4 connectors



Build your box according to your specification

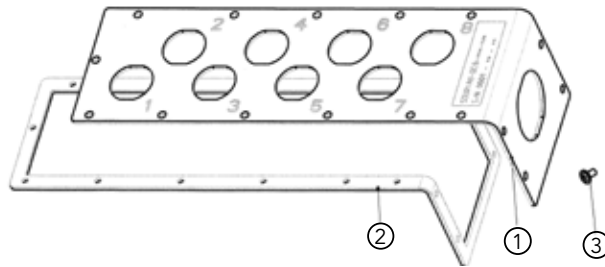
Set 1 – Box cover PN

Box cover references

To be determined according to the connector sizes and the number of holes

Includes:

- ① Stainless steel cover
- ② Flat seal
- ③ Fixing screws



Number of holes	For size 3 ULC connectors	For size 4 ULC connectors
2	020B1020A702	020B1010A702
4	020B1020A704	020B1010A704
6	020B1020A706	020B1010A706
8	020B1020A708	020B1030A708

Important note: If you require an odd number of holes (3, 5 or 7) please select the cover with the higher even number of holes. Then block one of the holes using a stainless steel dummy receptacle of the following references.

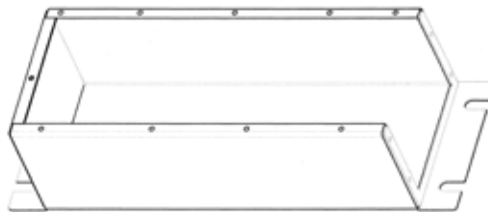
Size 3: REX3MXULCXNPX

Size 4: REX4MXULCXNPX

Set 2 - Box casing PN

Box casing references

To be determined according to the connector sizes and the number of holes (receptacles)

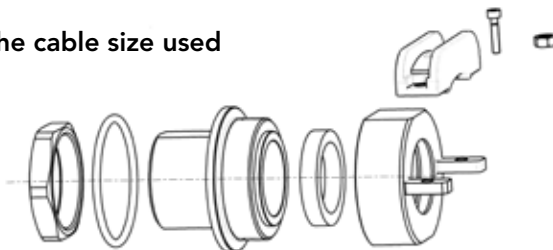


Number of holes	For size 3 ULC connectors	For size 4 ULC connectors
2	020B1020A7	020B1010A7
4	020B1020A7	020B1010A7
6	020B1020A7	020B1010A7
8	020B1020A7	020B1030A7

Build your box according to your specification

Set 3 – Cable sealing gland and clamp PN

Cable sealing gland and clamp
To be determined according to the cable size used



Cable diameter ranges		Cable gland set PN
Min diameter (mm/inch)	Max diameter (mm/inch)	
11 / 0.433	15 / 0.591	020T0010A7
15.1 / 0.592	18 / 0.709	020T0020A7
18.1 / 0.710	21 / 0.827	020T0030A7
21.1 / 0.828	25.5 / 1.004	020T0040A7
25.6 / 1.005	28 / 1.102	020T0050A7

ULC receptacle PN

ULC receptacles

The details of the ULC connectors receptacles are given in the next pages (10 to 13). Either size 3 or size 4 ULC connectors can be installed on the quick connect junction boxes. A large variety of contact sizes and layouts is available. Also the contacts can be either crimped or soldered (see page 11).

When the receptacles are not connected with the plugs they can be protected and sealed with EPDM caps.

Size 3: ULCBRE3
Size 4: ULCBRE4



Connector receptacle details

Keying

The ULC connectors can be equipped with 8 different keyings:

One junction box can receive up to 8 ULC receptacles of the same size and with the same contact layouts without any risk of a wrong connection. Eight different keying options are available. Each specific pattern goes with a specific color marking on the receptacle and the plug. This line marking allows the operator to find the right orientation of the connector when connecting. The keying system will also ensure that the plug-receptacle alignment is realized through a rigid sleeve and not via the contacts themselves.

- Keyings available (receptacle view):

Keying code	P1	P2	P3	P4	P5	P6	P7	P8
Front view								
Color	Red	Blue	White	Yellow	Green	Black	Brown	Purple

- Marking example:

Mark on receptacle



Mark on plug

Corresponding half sleeves







Connector receptacle details

Contacts

For multipin contact layouts, 2 options are available:

- Removable crimped contacts: The contacts can be removed from the insulators. They are to be crimped on the wires. In order to keep the IP55 sealing when the plugs are disconnected, the receptacles can be protected with EPDM caps (see PN on page 9).
- Fixed solder contacts: The contacts are force inserted in the insulator and available in solder versions only. The solder fixed contacts offer a better sealing and allow achieving an IP55 sealing when no plug is connected and the receptacle is not protected.

Multipin power & signal layouts with removable crimped contacts

		Contact sizes		
		#20	#16	#12
Number of contacts	4		3M4 	4M4 
	7	3M7 	4M7 	
	10		4M10 	
	14	4M14 		

Connector shell size	4	M	14
Multipin			
Number of contacts			

All the layouts described in this section are available with removable crimp contacts (MC & FC).

Contact layouts - Solder contacts

Multipin power & signal layouts with fixed solder contacts																						
		Contact sizes																				
		#20	#16	Ø1,3	#16	#12																
Number of contacts	2				3M2 4M2																	
	3				3M3																	
	4				3M4																	
	5		3M5																			
	7		3M7		4M7																	
	8		3M8 4M8																			
	12	3M12			4M12																	
	14		4M14		<div style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">M</td> <td style="width: 5%; text-align: center;">4</td> </tr> <tr> <td colspan="4">Connector shell size</td> </tr> <tr> <td colspan="4">Multiplin</td> </tr> <tr> <td colspan="4">Number of contacts</td> </tr> </table> </div>			3	M	4	Connector shell size				Multiplin				Number of contacts			
		3	M	4																		
	Connector shell size																					
	Multiplin																					
Number of contacts																						
18		4M18																				
19	3M19																					
30			4M30																			

All the layouts described in this section are available with removable crimp contacts (MC & FC).

Receptacles ordering information

Basic series	RE	MC	3	M5	ULCX	N	P1
Shells RE: Round flange receptacle							
Contacts MC: Pin contacts, crimp (contacts must be ordered separately) MS: Pin contacts, solder fixed FC: Socket contacts, crimp (contacts must be ordered separately) FS: Socket contacts, solder fixed							
Shell size 3 4							
Contact layouts Mxxx: Multipin (Refer to table p. 11-12)							
Shell material ULCX: Stainless Steel ULCT: Titanium ULCL: Brass							
Insulator material N: PEEK							
Keying P1 to P8							

ULC series connectors

For further details about the ULC series connectors...

Please refer to the ULC Series Connectors dedicated brochure.

The information given in this brochure is an highlight of the main characteristics of the ULC Series receptacles that can be mounted on the junction boxes. In the ULC Series brochure you will find complementary information on:

- Connector plugs
- Electrical characteristics
- ...

For further information contact us at contactnuclear@souriau.com
or visit our web site www.souriau.com/nuclear