

# ODU AMC<sup>®</sup> NP

## Product Training Module



## ODU AMC<sup>®</sup> NP

**Content:**  
15 pages

### **Purpose:**

Introduce the ODU AMC<sup>®</sup> NP connector

### **Objectives:**

- Review features and benefits
- Materials and specifications
- Cable and panel mounted options
- Keying options
- Insulation
- Insert arrangements
- Common part numbers
- Cable termination and assembly
- Assembly process
- Markets and applications
- Summary



## ODU AMC<sup>®</sup> NP

### FEATURES AND BENEFITS

- Ruggedized design tested to MIL-STD-810H
- Improved power contacts and USB<sup>®</sup> 2.0 capable
- Environmentally friendly, non-reflective black plating
- Cable assembly
- IP68, 20 m, 120 min waterproof versions
- Plating: RoHS compliant black carbon
- Compatible with: NATO STANAG 4695, Nett Warrior and GOSSRA
- Quick disconnect
- Options for solder or PCB terminations



The ODU AMC<sup>®</sup> NP Connector was designed and tested to military standard eight ten H. It has improved power contacts and is capable of USB 2.0 transmission. The housing is non-reflective RoHS compliant black carbon plating. This connector has a watertightness protection of IP68, 20 meters and 120 minutes of submersion capabilities. It is compatible with NATO STANAG 3695, Nett Warrior and GOSSRA. Available with solder or PCB terminations.



## MATERIALS

- High quality materials
- Lightweight materials
- High durability
- Resistant to extreme temperatures for use from the Arctic to the desert
- Chosen for use in harsh environments
- RoHS compliant

Component	Material	Surface
Housing / nut	aluminum AlMgSiSn1Bi	Black carbon over nickel
Insulator	PEEK (solder contacts) or LCP (crimp contacts)	
O-ring	fVMQ (fluorosilicone)	
Spring	stainless steel	Gold
Seals	fVMQ (fluorosilicone)	
Pin contact ODU specific Solder / PCB	CuNi1Pb1P (K41/ C97)	1.27 µm gold over nickel
Socket contact ODU specific Solder / PCB	CuNi1Pb1P (K41/ C97)	1.27 µm gold over nickel
Pin contact MIL standard High performance crimp	CuPb1P (C99)	1.27 µm gold over nickel
Socket contact MIL standard Crimp	CuNiPb1P (C97)	1.27 µm gold over nickel
	Stainless steel (sleeve)	
Potting (solder contacts)	Potting compound	
Overmolding material	TPU	
Contact retention clip	CeBu	

The ODU AMC® NP is made of high quality and lightweight materials and has RoHS compliant black carbon plating. This connector has a high durability and resistance to extreme temperatures which makes it ideal for military applications and harsh environments.



## SPECIFICATIONS

**Test methods  
according to:**

**MIL-STD-  
810H**

6		<b>Protection against contact with a wire Complete protection against ingress of dust</b>
8		<b>Protection against ingress of harmful quantities of water by continuous submersion into water</b>

Type	Performance	Standard
Protection class	IP68 20 meters 120 minutes	ISO 20653 MIL-STD-810H: 512.5
Salt atmosphere	2x 24h salt mist	Verification Nett Warrior
Operating temperature	-18°C up to +71°C	Nett Warrior MIL-STD-810H Method 501.7
Mating cycles	2000	MIL-DTL-38999M para. 4.5.8.2
Shell-to-shell conductivity	<50 m Ohms	Verification
Random vibration	37.8g	EIA-364-28F test condition V letter J
Breakaway force	13 +/- 3 lbf.	Verification Nett Warrior
Cable assembly strength	100 pound pull force static force, 30 second	Verification Nett Warrior

The ODU AMC® Series NP went through test methods according to MIL-STD 810H standards. It has a watertight protection of IP68 with 20 meter immersion capability up to 120 minutes. Operating temperatures from -18 ° Celcius up to +71 ° Celcius and up to 200 mating cycles.

## ODU AMC<sup>®</sup> NP CABLE MOUNTED

Solder cup

**A1** – Break-away plug



**K1** – In-line receptacle

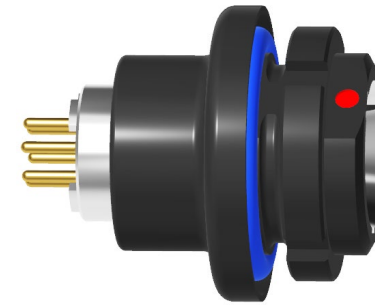
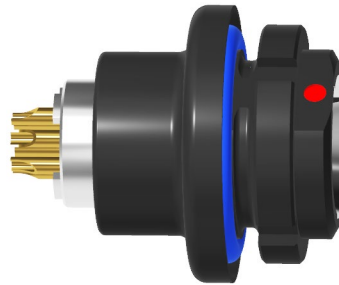


## ODU AMC<sup>®</sup> NP SERIES PANEL MOUNTED

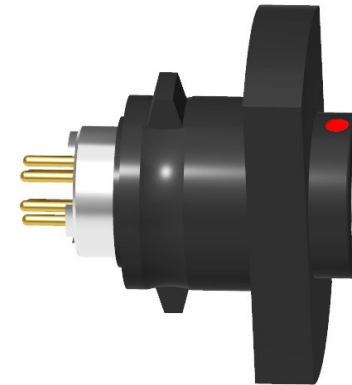
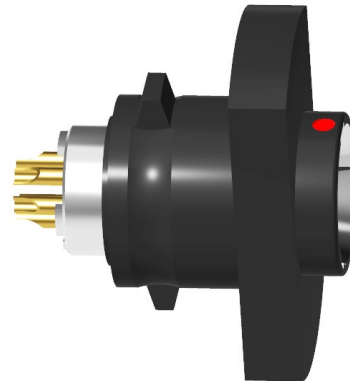
**GK** – Rear panel mount receptacle

Solder cup

PCB



**B0** – Bulkhead flange mount receptacle



## KEYING OPTIONS

- 3 position mechanical keying
- Prevent mis-mating connectors
- Red dot visual indicator main key
- 11 keyway configurations
  - 2 standard, 9 non-standard
- Non-standard keyways
  - “on request” please contact MFG

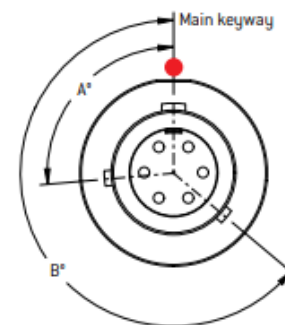
## KEYING OPTIONS

### NP KEYING GUIDE

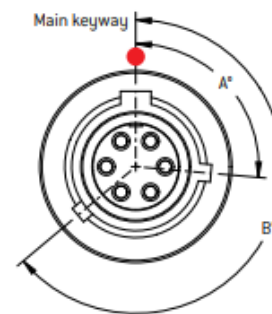
Keying	A*	B*
Ø	95	230
A	150	210
B	75	210
D	140	275
E	75	275
F	95	210
G	165	195
H	140	220
J	115	245
K	105	205
L	155	255

Ø and G keyway standard catalog. All others please consult factory

### PLUG



### RECEPTACLE

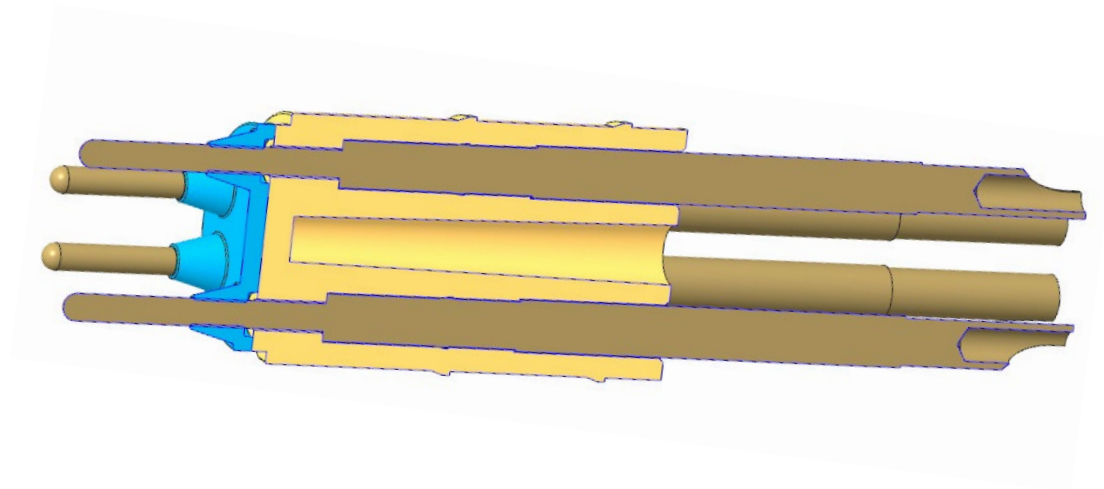




## INSULATION

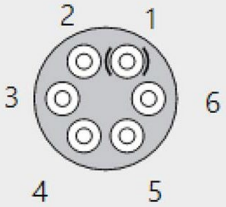
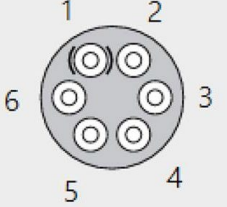
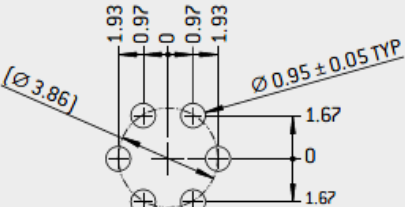
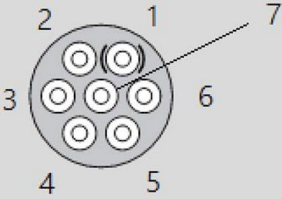
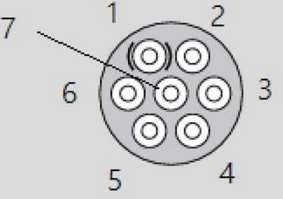
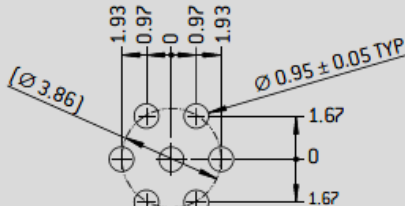
### Solder or PCB

- 1 piece insulator
- High Performance PEEK
- Front wire seal for pin side (Fluorosilicone)



The Insulator Body for the solder version is made up of a single piece of PEEK with a front wire seal.

## INSERT ARRANGEMENTS

	View on termination area		Data transmission protocols	PCB layout [view in mating direction]
	Pin side	Socket side		
6 position			USB <sup>®</sup> 2.0 <sup>3</sup>	
7 position			USB <sup>®</sup> 2.0 <sup>3</sup>	

There are 2 versions of the ODU AMC NP, the 6 and 7 position insulator designs. Both are capable of USB 2.0, however, the 7 position will only be available as a solder version. Additionally, you can see the insert arrangements and the PCB layout / spacing.

## CUSTOMER CABLE TERMINATION

Solder cup



OR



"Band-It" clamp



Straight heat shrink boot

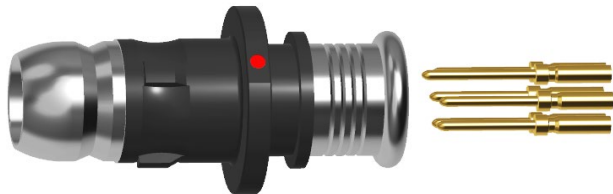


OR

Right-angle heat shrink boot



Crimp



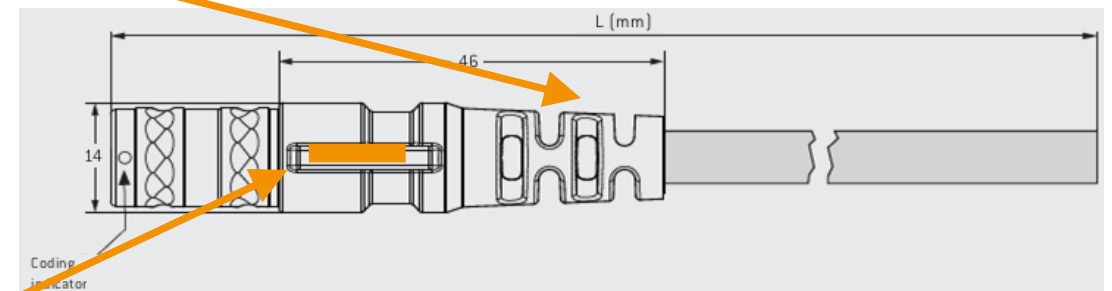
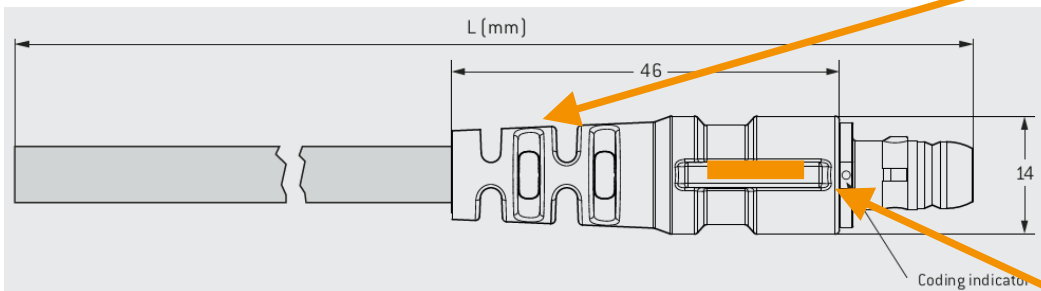
The cable mounted and inline receptacle are also available with an MIL Standard backshell termination.  
Cable and Screen Termination depends on used Back-Shell.

## ODU CABLE ASSEMBLY



Customizable

High performance strain relief



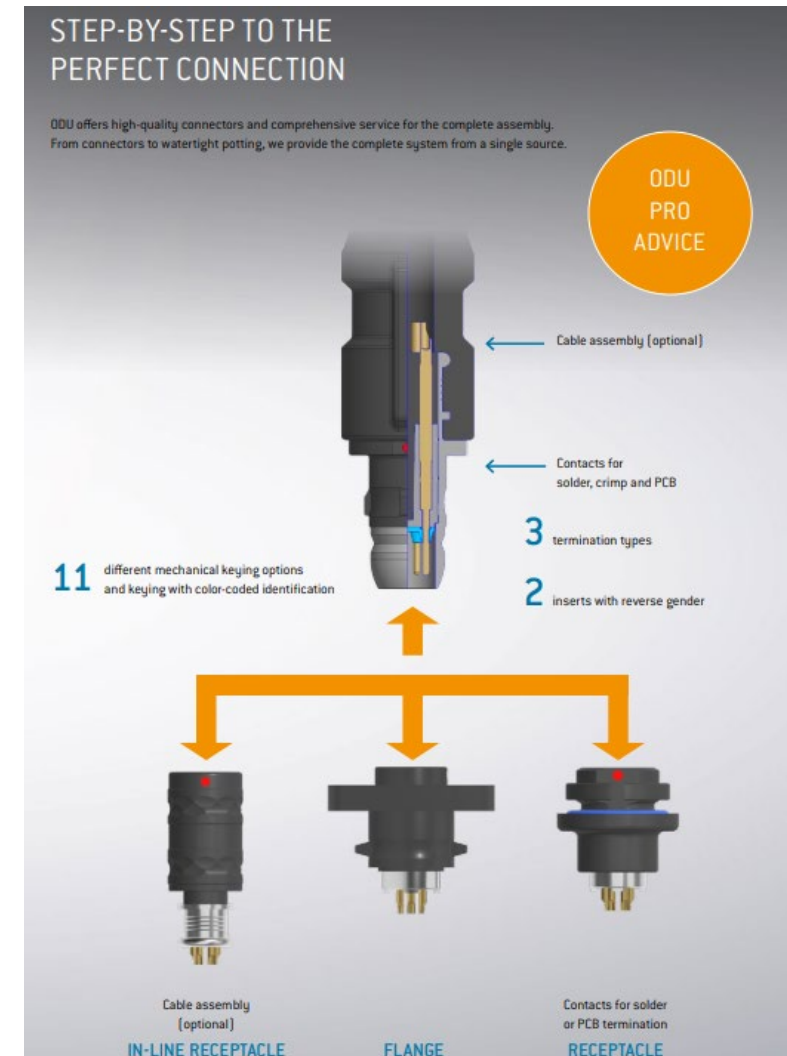
Tactile key indicator

The cable mounted and inline receptacle are also available with an MIL Standard backshell termination.  
Cable and Screen Termination depends on used Back-Shell.

## ODU AMC<sup>®</sup> NP STEP-BY-STEP TO THE PERFECT CONNECTION

ODU offers high-quality connectors and comprehensive service for the complete assembly. From connectors to watertight potting, we provide the complete system from a single source.

- Cable assembly (optional)
- Contacts for solder, crimp and PCB
- 3 termination types
- 2 inserts with reverse gender
- 11 different mechanical keying options and keying with color-coded identification
- In-Line, panel mount and flange mount receptacles available



## MARKETS AND APPLICATIONS

ODU AMC<sup>®</sup> NP is mainly used for

- Tactical soldier batteries
- PDU (power distribution units)
- CWB (Conformable Wearable Batteries)
- C4ISR peripherals for the transmission of USB 2.0 signals and power.

It is compatible with open architecture standards such as:

- NATO STANAG 4695
- Nett Warrior
- GOSSRA (General Open Structure Architecture).



## SUMMARY

### ODU AMC<sup>®</sup> NP offers:

- Compatible with: NATO STANAG 4695, Nett Warrior and GOSSRA
- Ruggedized design testing to MIL-STD-810H
- Improved power contacts and USB<sup>®</sup> 2.0 capable
- Environmentally friendly, non-reflective black plating
- IP68, 20 m, 120 min waterproof versions
- Mechanical & colored keying
- Plating: RoHS compliant Black carbon

The contact arrangement of an ODU data transmission connector differs from a standard data transmission connector due to the robust ODU specific design. However, the ODU design meets the electrical specifications of the respective standard data transmission protocol.

