

## M12AP/M12XR Y-cable

### Y-cable for Industrial Applications

#### SUMMARY

The M12AP/M12XR Y-cable is a production ready ingress protected cable with Ouster bayonet connector on the sensor side, M12 A-coded plug (male) circular connector for standard signal, sensor, or power applications and M12 X-coded connector for high-speed Ethernet applications. M12 cable is known for its durability and is the preferred standard for industrial customers

#### HIGHLIGHTS

- IP68/69K rated Ouster connector and approved for outdoor use in production environments
- Available in 1m and 5m lengths in standard inventory
- Operating temperature (Type 3 cable): -40°C to ~+125°C
- Preferred standard for all industrial customers



#### Cable Assembly Details

Specification description	Specification details
Ouster connector	Proprietary Sinbon Connector
Cable components	Ouster Type 3 Cable Y Overmold Tube connecting to M12AP connector Tube connecting to M12XR connector
Y cable junction connectors	M12 A-coded Plug (4 pins) M12 X-coded Receptacle (8 pins)
Ouster connector orientation	Straight - available in 1 m and 5 m cable length (L) Right angle - available in 1 m and 5 m cable length (L)
Cable voltage rating	For usage with Ouster sensors only: 12 V nominal and 24 V nominal

#### IP Rating

Ouster sensor connector	IP68/69K
Y cable junctions (M12AX, M12AP)	IP67

#### Cable cross section details (for Type 3 cable)

Insulation Extrusion	Core A	Core B	Core C
Conductor AWG	28AWG(7/0.127 mm), Tinned Stranded Copper	28AWG (7/0.127 mm), Tinned Stranded Copper	18AWG (41/0.16 mm), Tinned Stranded Copper
Conductor Dia. Nom.	0.38 mm	0.38 mm	1.18 mm
Primary Number	4P	2C	2C
Insulator	XLPE	XLPE	XLPE
Primary O. D.	1.0±0.10 mm	1.20±0.10 mm	2.0±0.10 mm
Nom. Thickness	0.30 mm	0.38 mm	0.38 mm
Min. Thickness	0.25 mm	0.33 mm	0.33 mm
Primary Color Code	A1.Brown&Brown/White, A2.Blue&Blue/White, A3.Green&Green/White, A4.Orange&Orange/White	B1.Yellow,B2.Purple	C1.Red, C2.Black,
Twisting. Pitch	A1.20.0±2 mm A2.14.3±2 mm A3.17.2±2 mm A4.10.7±2 mm	N/A	N/A
Filler	Cotton Thread	N/A	N/A
Al-mylar (overlapping,%) Foil Facing Out	≥ 25%	N/A	N/A

#### Assembly (for Type 3 cable)

Filler	Nylon Cord
Al-mylar-Al (overlapping,%)	≥ 25%(40 μm)
Drain	28AWG (7/0.127 mm), Tinned Stranded Copper

#### Shield (Braid)

Construction	Tinned Copper 0.10 mm
Coverage	≥ 85%

**Jacket Extrusion (for Type 3 cable)**

Jacket Material	XLPE
Jacket Diameter	8.20±0.30 mm
Nom. Thickness	0.76 mm
Min. Thickness	0.61 mm
Surface	Half Matte
Marking	E326837 AWM STYLE 21411 125°C 300V VW-1 --- c AWM I/II A/B 125°C 300V FT1 SINBON
Color	Black

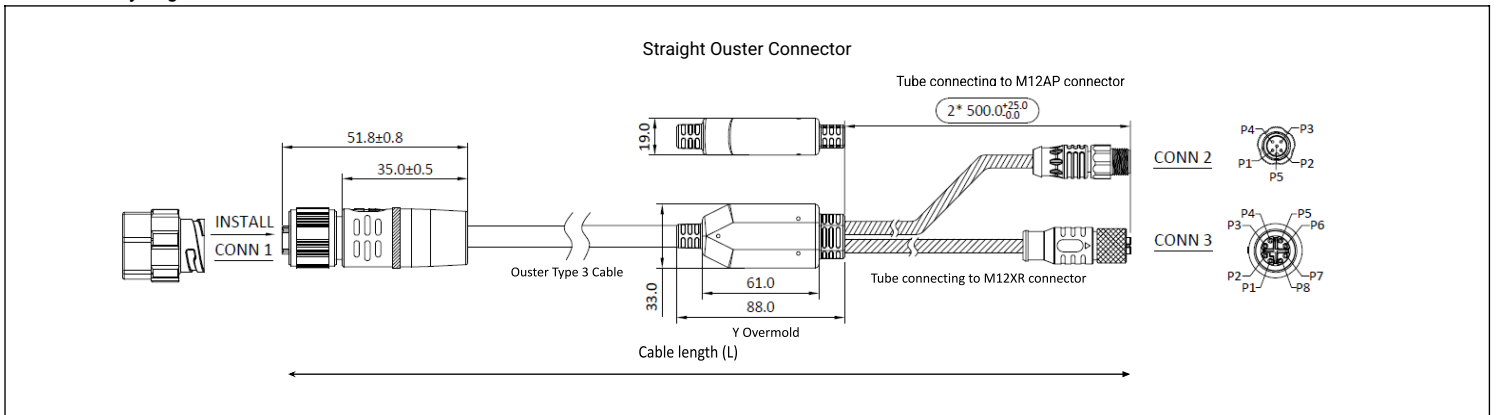
**Characteristics (for Type 3 Cable)**

Max. Conductor DC Resistance(20°C)	Core A: 239(Ω/km) Core B: 239(Ω/km) Core C:23.2 (Ω/km)
Dielectric Strength	2000V/min AC
Impedance	100±15Ω(Pair A1-A4) Refer to Cat 5e
UV Resistance	720 Hrs (UL 1581-1200)
Flammability Test	FT2 (UL 1581-1100)
Tensile Strength before Aging	≥ 10.3 MPa
Elongation before Aging	≥ 300%
Oil Resistance(IRM902)	70°C x 4 Hrs
Tensile Strength after Aging	≥ 50% of original
Elongation after Aging	≥ 50% of original
Rated Temperature	-40~+125°C
Rated Voltage	300 V
Current	7 A (Core C)
Min.Bending radius (for Type 3 cable)	Static: 41 mm Flexible: 82 mm

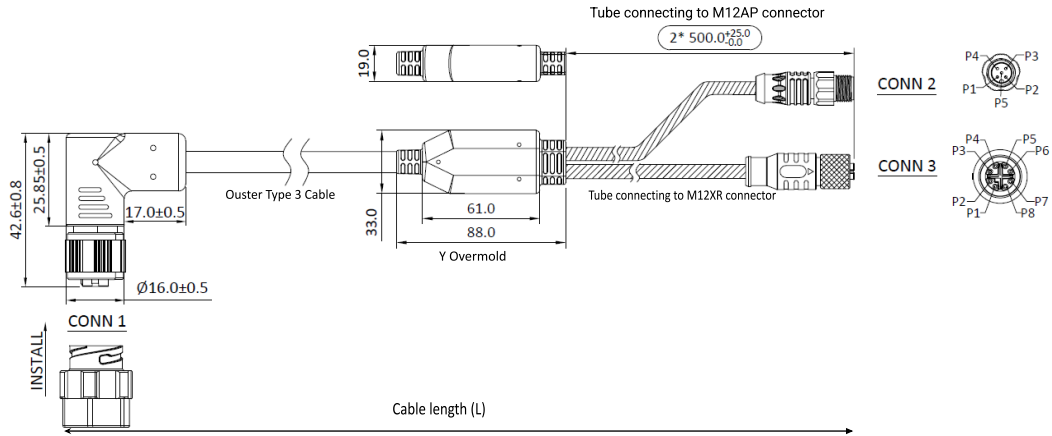
**Specifications for other cable components**

Spec description	Y overmold	Tube connecting to M12XR connector	Tube connecting to M12AP connector
Material	Thermoplastic Vulcanizate	Polyolefin	Outer Layer Material: EVA (Ethylene-Vinyl Acetate) Inner Layer Material: Hot Melt Adhesive
Dielectric Strength	32 kV/mm (or 800 V/mil) Measured at a thickness of 2.03 mm (0.0800 in). Testing method: ASTM D149	Measured at 2500 V for 60 seconds without breakdown Testing method: UL224	Measured at 2500 V for 60 seconds without breakdown Testing method: UL224
Flammability Test	UL 94 HB	VW-1	VW-1
Tensile Strength before Aging	11.1 MPa (1610 psi) Testing method: ASTM D412	≥10.4 MPa Testing method: UL224	≥12 Mpa Testing method: ASTM D2671
Elongation before Aging	Requirement≥540% Testing method: ASTM D412	Requirement≥200 % Testing method: UL224	Requirement≥300 % Testing method: ASTM D2671
Tensile Strength after Aging	≈10.5 MPa Testing method: 150°Cx168h	Requirement≥ 7.3 MPa Testing method: UL224 158°Cx168h	Requirement≥7.3 Mpa Testing method: UL224 158°Cx168h
Elongation after Aging	Requirements≥ 475 % Testing method: 150°Cx168h	Requirement≥100 % Testing method: UL224 158°Cx168h	Requirements≥200 % Testing method: UL224 158°Cx168h
Rated Temperature	N/A	-55°C~125°C	-45°C~125°C
Rated Voltage	N/A	58 V	58 V

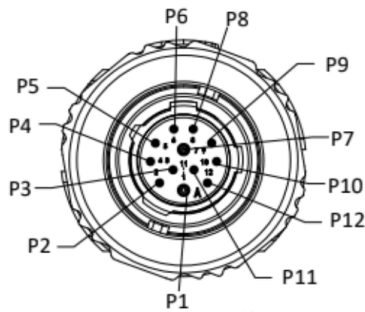
**Cable assembly diagram**



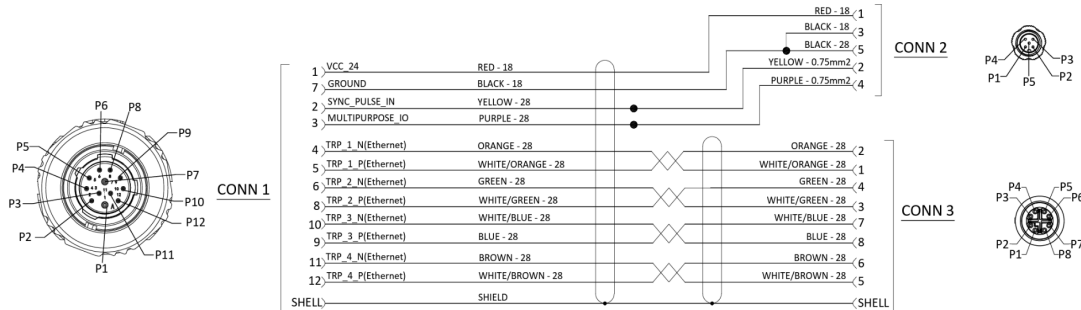
### Right Angle Ouster Connector



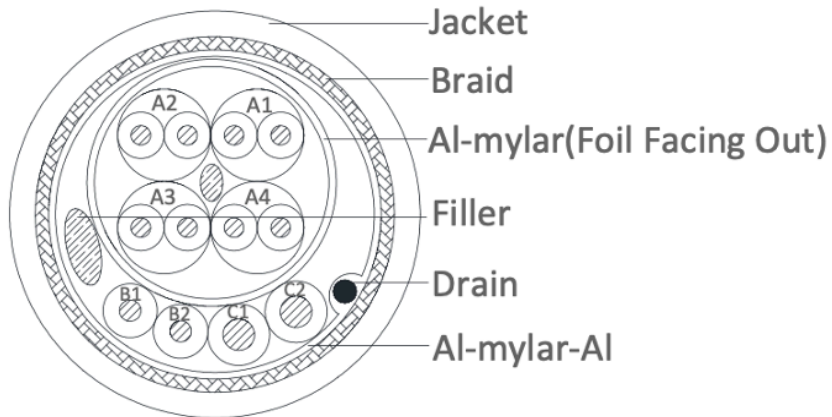
### Conn 1 Enlarged Figure



### Connection Assignment



### Cable Cross-section diagram



\*Specifications are subject to change without notice.