

**CABLE SERIES 155331**  
**Servo Motor - UL AWM recognized - PUR jacket**  
**cULus Style 21223 (80°C / 1000V)**

**1. CONSTRUCTION DATA**

**1.1 CONDUCTOR:**

Bare copper strand; according to EN 13602 - ETP1; stranding according to DIN VDE 0295, EN60228 Class 6  
Stranded lay compliant with UL 758.

**1.2 WIRE STRUCTURE:**

Signal				
Nominal section (mm <sup>2</sup> )	AWG	Stranding (nbr of wires x wire diameter in mm)	Diameter of stranded core (mm)	Max Resistance Ref. std. IEC 60344 (Ω/km)
0.75	19	42x0.15	1.20	27.7
1.00	18	52x0.15	1.32	22.4
1.50	16	81x0.15	1.50	14.4
Power				
Nominal section (mm <sup>2</sup> )	AWG	Stranding (nbr of wires x wire diameter in mm)	Diameter of stranded core (mm)	Max Resistance Ref. std. IEC 60344 (Ω/km)
1.50	16	81x0.15	1.50	14.4
2.50	14	133x0.15	2.10	8.7
4.00	12	78x0.254	2.60	5.2
6.00	10	117x0.254	3.15	3.5

**1.3 INSULATION:**

Thermoplastic Elastomer compound; Max Insulation resistance >600 GΩxkm (IEC60189-1&IEC60885-1 or EN50289-1-4); nominal hardness 50 Shore D; according to UL758

**1.4 INSULATION DIAMETER**

Signal		
Nominal section (mm <sup>2</sup> )	Nominal Ø (mm)	Nominal thickness (mm)
0.75	1.80	0.30
1.00	2.00	0.34
1.50	2.15	0.32
Power		
Nominal section (mm <sup>2</sup> )	Nominal Ø (mm)	Nominal thickness (mm)
1.50	2.35	0.42
2.50	3.00	0.45
4.00	3.60	0.50
6.00	4.50	0.68

REVISION HISTORY Rev.A1 26/02/2016 RELEASED	ECR/ECN INFORMATION:	TITLE: <b>SERVO MOTOR – PUR jacket</b>	Page <b>1 of 4</b>
Document Number: <b>1553310001 PS P1E A1</b>	Created/Revised by: <b>M. Arrigoni</b>	Checked by: <b>A. Defendi</b>	Approved by: <b>C. Lerosé</b>

**1.5 ASSEMBLY:**

**1.5.1 Signal pair**

Cores stranded in pairs (one or two).

Each pair is shielded with Tin copper wire (Braid type - nominal optical coverage 85%) and wrapped with tape

**1.5.2 Total Assembly**

Power Core and Signal Pairs (if present) stranded together, fillers may be used for a better roundness.

**1.6 TAPE:**

Wrap over assembly

**1.7 BRAID SHIELD:**

Tin copper wire, nominal optical coverage 85%.

**1.8 TAPE:**

Wrap over shield

**1.9 JACKET:**

Polyurethane (PUR, TPU), ether base, Halogen free, nominal hardness 90 Shore A; Silicone, Pb,Cd,Hg & FCKW free; according to UL758.

For overall diameter, jacket and cores colors refer to Annex #1

**2. TECHNICAL DATA**

**2.1 ELECTRICAL:**

Voltage rating	1000 Vrms
Voltage test on core (Power)	3000 Vrms x 1 min. (IEC60885-1)
Voltage test on core (Brake)	3000 Vrms x 1 min. (IEC60885-1)

**2.2 TEMPERATURE:**

Temperature range (fixed)	-50 °C to +90°C (10'000h ISO6722 pending)
Temperature range (flex)	-40°C to +80°C (free motion without periodic recurrence and forced guidance)
Temperature range (drag chain)	-35°C to +60°C

**2.3 CHEMICAL:**

Oil resistance	UL758/UL2556/EN50363-10-2 (7 days @ 100°C - IRM902 oil)
Free of FCKW, Silicone and Pb	yes
Halogen free	yes (IEC60754-1 EN50267-2-1 VDE0472-815)

**2.4 PHYSICAL:**

UV resistant	yes (UL1581/2556– 300h)
Max installation pulling force	100N
Bending radius (fixed)	>5xOD
Bending radius (flex)	>10xOD
Bending radius (drag chain)	>12xOD (up to 5Mio @ 20°C in freely suspended chain)*
Torsion @ 20°C	optimal recommended ±30°/m *

\*Default criterium of the norm-bendings is electrical failure due to conductor breakage or conductor short-circuit. Extreme sheath adhesion is not a default criterium since it cannot be influenced by the cable manufacturer (e.g. through big abrasion between cable and chain, non-suitable chain construction or wrong installation of cable in the chain).

REVISION HISTORY Rev.A1 26/02/2016 RELEASED	ECR/ECN INFORMATION:	TITLE: <b>SERVO MOTOR – PUR jacket</b>	Page <b>2 of 4</b>
Document Number: <b>1553310001 PS P1E A1</b>	Created/Revised by: <b>M. Arrigoni</b>	Checked by: <b>A. Defendi</b>	Approved by: <b>C. Lerosé</b>
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**2.5 FLAME:**

UL Vertical Flame Test	pass
UL VW-1, CSA FT-1	pass
IEC 60332-1/2	pass

**3. COMPLIANCE**

Accordance to:

- 2006/95/CE; 2004/108/CE; 2011/65/CE (RoHS)
- UL/CSA (UL AWM Style 21223, use: external interconnection of electronic equipment)
- NFPA79-2012 circumstances mentioned in Chapter 12

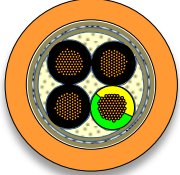
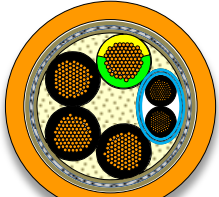
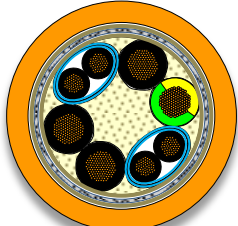
**4. PRINTING & PACKAGE**

Printing text  
Package

Ink-jet type; conform to UL758  
available in different packaging sizes (*refer to Annex #1*)

REVISION HISTORY Rev.A1 26/02/2016 RELEASED	ECR/ECN INFORMATION:	TITLE: <b>SERVO MOTOR – PUR jacket</b>	Page <b>3 of 4</b>
Document Number: <b>1553310001 PS P1E A1</b>	Created/Revised by: <b>M. Arrigoni</b>	Checked by: <b>A. Defendi</b>	Approved by: <b>C. Lerosé</b>
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**ANNEX 1**

mm <sup>2</sup>	AWG	N° of cond	O.D. (mm)	Jkt color	Pack. size	Packaging composition	Standard order n°	Sketch*
(4G1,5)	(4G AWG16)	4	9,0	Orange	S	1x200m	1553310001	 Black numbered in White + Yellow/Green (see note*)
				Orange	M	1x500m	1553310002	
				Orange	L	1x1000m	1553310003	
(4G2,5)	(4G AWG14)	4	10,6	Orange	S	1x100m	1553310004	
				Orange	M	1x500m	1553310005	
				Orange	L	1x1000m	1553310006	
(4G4,0)	(4G AWG12)	4	12,2	Orange	S	1x100m	1553310007	
				Orange	M	1x500m	1553310008	
				Orange	L	1x1000m	1553310009	
(4G6,0)	(4G AWG10)	4	14,5	Orange	S	1x100m	1553310010	
				Orange	M	1x500m	1553310011	
				Orange	L	1x1000m	1553310012	
(4G1,5+(2x1,5))	(4G AWG16+(2xAWG16))	6 (4+2)	11,1	Orange	S	1x100m	1553311001	 Black numbered in White + Yellow/Green (see note*)
				Orange	M	1x500m	1553311002	
				Orange	L	1x1000m	1553311003	
(4G2,5+(2x1,5))	(4G AWG14+(2xAWG16))	6 (4+2)	12,6	Orange	S	1x100m	1553311004	
				Orange	M	1x500m	1553311005	
				Orange	L	1x1000m	1553311006	
(4G4,0+(2x1,5))	(4G AWG12+(2xAWG16))	6 (4+2)	14,00	Orange	S	1x100m	1553311007	
				Orange	M	1x500m	1553311008	
				Orange	L	1x1000m	1553311009	
(4G6,0+(2x1,5))	(4G AWG10+(2xAWG16))	6 (4+2)	16,20	Orange	S	1x100m	1553311010	
				Orange	M	1x250m	1553311011	
				Orange	L	1x500m	1553311012	
(4G1.5+2x(2x0.75))	(4G AWG16+2x(2xAWG19))	8 (4+2+2)	12,1	Orange	S	1x100m	1553312001	 Black numbered in White + Yellow/Green (see note*)
				Orange	M	1x500m	1553312002	
				Orange	L	1x1000m	1553312003	
(4G2.5+2x(2x1.0))	(4G AWG14+2x(2xAWG18))	8 (4+2+2)	14,1	Orange	S	1x100m	1553312004	
				Orange	M	1x500m	1553312005	
				Orange	L	1x1000m	1553312006	
(4G4+2x(2x1.5))	(4G AWG12+2x(2xAWG16))	8 (4+2+2)	15,8	Orange	S	1x100m	1553312007	
				Orange	M	1x250m	1553312008	
				Orange	L	1x500m	1553312009	
(4G6+2x(2x1.5))	(4G AWG10+2x(2xAWG16))	8 (4+2+2)	17,9	Orange	S	1x100m	1553312010	
				Orange	M	1x250m	1553312011	
				Orange	L	1x500m	1553312012	

\*Colour Sequence  
for packaging size L: colors clockwise exit drum (as in sketch)  
for packaging size S and M; colors counterclockwise

Black Cores (printing is in white)  
Power  
1<sup>st</sup> Core: Black printing U/L1/C/L+  
2<sup>nd</sup> Core: Black printing V/L2  
3<sup>rd</sup> Core: Black printing W/L3/D/L-  
Yellow/Green core

Signal  
One signal Pair: Black printing 4 + Black printing 5  
Two signal Pairs: 1<sup>st</sup> Pair = Black printing 5 + Black printing 6  
2<sup>nd</sup> Pair = Black printing 7 + Black printing 8

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