

FIELD GUIDE TO CABLES

Easily identify and select the right cable for the job





FIELD GUIDE TO CABLES

In the field of sensor/actuator connectivity, Murrelektronik offers you an extremely wide range of cable types (PVC, PUR/PVC, PUR, Robotic and TPE, colors (yellow, gray and black) and lengths (0.1 to 100m).

We have created this guide to walk you through the various cordsets we offer. For more detailed information on a particular style, please visit our website, murrinc.com to download additional literature or visit our online catalog, shop.murrelektronik.com to download data sheets or CAD files.



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SYMBOL GUIDE

Throughout this book you will see the symbols below. This is a quick guide to each and its meaning.



Indicates what size torque wrench is to be used with a particular cable type. See page 36 for ordering information.



Ingress Protection Rating
67 - Dust-tight & Water Immersion (30min @ 1m)
68 - Dust-tight & Water Immersion (96hr @ 1m)
69k - Dust-tight & Water Jet High Pressure & Temperature (4x30sec @ 176°F & 1500psi)



Shielded Cable



Ethernet Performance Level
5e - 100MHz (1 GBit/s)
6a - 500MHz (10Gbit/s)



Suitable for a wide temperature range



Sunlight/UV Resistant



Suitable for NEC/NFPA70 (National Electric Code) Installation Locations

M12: 3 to 5-pole



- The standard industry connection for Sensor and Actuator components.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution

	3-pole	4-pole	5-pole
13			
Nominal Voltage	250 V AC/DC		125 V AC/DC
Rated Current	4A per pin		
Male Straight	7000-12001-xxxxxxx	7000-12021-xxxxxxx	7000-12041-xxxxxxx
Male 90°	7000-12081-xxxxxxx	7000-12101-xxxxxxx	7000-12121-xxxxxxx
Female Straight	7000-12181-xxxxxxx	7000-12221-xxxxxxx	7000-12241-xxxxxxx
Female 90°	7000-12321-xxxxxxx	7000-12341-xxxxxxx	7000-12361-xxxxxxx
Male Str. to Female Str.	7000-40001-xxxxxxx	7000-40021-xxxxxxx	7000-40041-xxxxxxx
Male Str. to Female 90°	7000-40101-xxxxxxx	7000-40121-xxxxxxx	7000-40141-xxxxxxx
Male 90° to Female Str.	7000-40171-xxxxxxx	7000-40201-xxxxxxx	7000-40221-xxxxxxx
Male 90° to Female 90°	7000-40241-xxxxxxx	7000-40261-xxxxxxx	7000-40281-xxxxxxx

Cable Code (xxx)				
1. Type	2. Color	3-pole	4-pole	5-pole
22AWG				
PVC	Yellow	013	014	015
	Gray	213	214	215
	Black	613	614	615
PUR/PVC	Yellow	023	024	025
	Gray	223	224	225
	Black	623	624	625
PUR (Type 3) Halogen Free Flex	Yellow	033	034	035
	Gray	233	234	235
	Black	633	634	635
PUR Flex & Torsion	Yellow	053	054	055
	Gray	253	254	255
	Black	653	654	655

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12

| M12: 8 and 12-pole



	8-pole	12-pole
13		
Nominal Voltage	30V	
Rated Current	2A per pin	1.5A per pin
Male Straight	7000-17001 -xxxxxxx	7000-19001 -xxxxxxx
Male 90°	7000-17021 -xxxxxxx	7000-19021 -xxxxxxx
Female Straight	7000-17041 -xxxxxxx	7000-19041 -xxxxxxx
Female 90°	7000-17061 -xxxxxxx	7000-19061 -xxxxxxx
Male Str. to Female Str.	7000-48001 -xxxxxxx	7000-53001 -xxxxxxx
Male Str. to Female 90°	7000-48011 -xxxxxxx	7000-53021 -xxxxxxx
Male 90° to Female Str.	7000-48031 -xxxxxxx	7000-53041 -xxxxxxx
Male 90° to Female 90°	7000-48021 -xxxxxxx	7000-53061 -xxxxxxx

- The standard industry connection for Sensor and Actuator components.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution



Cable Code (xxx)			
1. Type	2. Color	8-pole	12-pole
PVC	Gray	293	
	Black	607	702
PUR (Type 3) Halogen Free Flex	Yellow	114	
	Gray	292	301
	Black	722	705
PUR Flex & Torsion	Red	718	
	Gray	377	302

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12

M12: 4 - 8-pole Shielded



- The standard industry connection for Sensor and Actuator components.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution



	4-pole	5-pole	8-pole
13			
Nominal Voltage	60V		30V
Rated Current	4A per pin		2A per pin
Male Straight	7000-13081-xxxxxxx	7000-13101-xxxxxxx	7000-17081-xxxxxxx
Male 90°	7000-13141-xxxxxxx	7000-13161-xxxxxxx	7000-17101-xxxxxxx
Female Straight	7000-13201-xxxxxxx	7000-13221-xxxxxxx	7000-17121-xxxxxxx
Female 90°	7000-13261-xxxxxxx	7000-13281-xxxxxxx	7000-17141-xxxxxxx
Male Str. to Female Str.	7000-40501-xxxxxxx	7000-40521-xxxxxxx	7000-48041-xxxxxxx
Male Str. to Female 90°	7000-40511-xxxxxxx	7000-40541-xxxxxxx	7000-48051-xxxxxxx
Male 90° to Female Str.	7000-40211-xxxxxxx	7000-40471-xxxxxxx	7000-48061-xxxxxxx
Male 90° to Female 90°	7000-40491-xxxxxxx	7000-40451-xxxxxxx	7000-48071-xxxxxxx

Cable Code (xxx)				
1. Type	2. Color	4-pole	5-pole	8-pole
22AWG				
PVC	Gray	201	202	205
	Black	601	602	
PUR/PVC	Gray	331	349	
PUR (Type 3) Halogen Free Flex		241	242	291/294
PUR Flex & Torsion	Black	641	642	717
		657		

Cable Code (xxx)				
1. Type	2. Color	4-pole	5-pole	8-pole
22AWG				
PVC	Gray		203	
	Black		603	
PUR (Type 3) Halogen Free Flex	Gray		243	
	Black		643	

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12

M12: 3-8-pole, TPE



- Sensor and Actuator industry connection with US cable styles.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution.
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- TPE has ITC/PLTC and FT4 flame ratings for use in cable tray, is highly flexible with an expanded temperature range, oil, UV and weld slag resistant.



	3-pole	4-pole	5-pole	8-pole
13				
Nominal Voltage	250V		125V	30V
Rated Current	4A per pin			2A per pin
Male Straight	7700-12001-xxxxxxx	7700-12021-xxxxxxx	7700-12041-xxxxxxx	7700-17001-xxxxxxx
Male 90°	7700-12081-xxxxxxx	7700-12101-xxxxxxx	7700-12121-xxxxxxx	7700-17021-xxxxxxx
Female Straight	7700-12181-xxxxxxx	7700-12221-xxxxxxx	7700-12241-xxxxxxx	7700-17041-xxxxxxx
Female 90°	7700-12321-xxxxxxx	7700-12341-xxxxxxx	7700-12361-xxxxxxx	7700-17061-xxxxxxx
Male Str - Female Str	7700-40001-xxxxxxx	7700-40021-xxxxxxx	7700-40041-xxxxxxx	7700-48001-xxxxxxx
Male Str - Female 90°	7700-40101-xxxxxxx	7700-40121-xxxxxxx	7700-40141-xxxxxxx	7700-48011-xxxxxxx
Male 90° - Female Str	7700-40171-xxxxxxx	7700-40201-xxxxxxx	7700-40221-xxxxxxx	7700-48031-xxxxxxx
Male 90° - Female 90°	7700-40241-xxxxxxx	7700-40261-xxxxxxx	7700-40281-xxxxxxx	7700-48021-xxxxxxx

Cable Code (xxx)					
1. Type	2. Color	3-pole	4-pole	5-pole	8-pole
TPE 22AWG 300V	Yellow	U03	U04	U05	U0H
	Gray		U24	U25	U2H
TPE 18AWG 600V	Yellow	U67	150	161	
	Black		U68	U68	

Cable Code (xxx)					
1. Type	2. Color	3-pole	4-pole	5-pole	8-pole
TPE 18AWG 600V	Yellow			162	
	Black			U98	








Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12


| M12: 4-pole, Shielded TPE



	4-pole	4-pole
13	 Drain wire connected to coupling	 Drain wire NOT connected to coupling
Nominal Voltage	250V	
Rated Current	4A per pin	
 Male Straight	7700-13081 -xxxxyyy	7700-13086 -xxxxyyy
 Male 90°	7700-13141 -xxxxyyy	7700-13146 -xxxxyyy
 Female Straight	7700-13201 -xxxxyyy	7700-13206 -xxxxyyy
 Female 90°	7700-13261 -xxxxyyy	7700-13266 -xxxxyyy
 Male Str - Female Str	7700-40501 -xxxxyyy	7700-40506 -xxxxyyy
 Male Str - Female 90°	7700-40511 -xxxxyyy	7700-40516 -xxxxyyy
 Male 90° - Female Str	7700-40211 -xxxxyyy	7700-40216 -xxxxyyy
 Male 90° - Female 90°	7700-40491 -xxxxyyy	7700-40496 -xxxxyyy

- Sensor and Actuator industry connection with US cable styles.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution.
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- TPE has ITC/PLTC and FT4 flame ratings for use in cable tray, is highly flexible with an expanded temperature range, oil, UV and weld slag resistant.



Cable Code (xxx)		
1. Type	2. Color	4-pole
		
TPE 22AWG 300V	Gray	S24
TPE 18AWG 600V		S27

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12

| M8: 3 and 4-pole



- The compact industry connection for Sensor and Actuator components.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution



	3-pole	4-pole
Nominal Voltage	60V DC / 50V AC	
Rated Current	4A per pin	
Male Straight	7_00-08001 -xxxxxxx	7_00-08011 -xxxxxxx
Male 90°	7_00-08021 -xxxxxxx	7_00-08031 -xxxxxxx
Female Straight	7_00-08041 -xxxxxxx	7_00-08061 -xxxxxxx
Female 90°	7_00-08081 -xxxxxxx	7_00-08101 -xxxxxxx
Male Str. to Female Str.	7_00-88001 -xxxxxxx	7_00-88011 -xxxxxxx
Male Str. to Female 90°	7_00-88021 -xxxxxxx	7_00-88031 -xxxxxxx
Male 90° to Female Str.	7_00-88061 -xxxxxxx	7_00-88071 -xxxxxxx
Male 90° to Female 90°	7_00-88081 -xxxxxxx	7_00-88091 -xxxxxxx

Cable Code (xxx)			
1. Type	2. Color	3-pole	4-pole
24AWG			
Use the 7000 prefix with the following cable types			
PVC	Yellow	010	011
	Gray	210	211
	Black	610	611
PUR/PVC	Yellow	020	021
	Gray	220	221
	Black	620	621
PUR (Type 3) Halogen Free Flex	Yellow	030	031
	Gray	230	231
	Black	630	631
PUR Flex & Torsion	Yellow	050	051
	Gray	250	251
	Black	650	651
Use the 7700 prefix with the following cable types			
TPE 22AWG 300V	Yellow	U03	U04
	Gray		U24

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

ETHERNET: Unshielded



Ethernet/IP

	4-pole	8-pole
13		
Male Straight	7700-14543-xxxxxxx	7700-17543-xxxxxxx
Male 90°	7700-14563-xxxxxxx	7700-17563-xxxxxxx
RJ45	7700-74103-xxxxxxx	7700-74113-xxxxxxx
Female Receptacle	7700-14513-xxxxxxx	7700-17513-xxxxxxx
Male Str. to Male Str.	7700-44513-xxxxxxx	7700-48513-xxxxxxx
Male Str. to Male 90°	7700-44543-xxxxxxx	7700-48543-xxxxxxx
Male 90° to Male 90°	7700-44563-xxxxxxx	7700-48563-xxxxxxx
Male Str. to Fem. Str.	7700-44573-xxxxxxx	7700-48573-xxxxxxx
Male Straight to RJ45	7700-44713-xxxxxxx	7700-48523-xxxxxxx
Male 90° to RJ45	7700-44763-xxxxxxx	7700-48553-xxxxxxx
RJ45 to RJ45	7700-74303-xxxxxxx	7700-74713-xxxxxxx
Fem. Recept. to RJ45	7700-44853-xxxxxxx	7700-48853-xxxxxxx

- Industrial grade ethernet connectivity.
- UL Listed – Communications & Data
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- Connector Rating
 - Transmission Characteristic: Category 5e / ISO Class D
 - 4 wire to 100 MBit/s
 - 8 wire to 1,000 MBit/s (1 GBit/s)



Cable Code (xxx)			
1. Type	2. Color	4-pole	8-pole
Ethernet/IP 24AWG c(UL)us Type CM AWM	Blue TPE	UEU	
	Orange TPE	URU	
	Teal TPE	U4U	U4W

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

ETHERNET: Shielded



EtherNet/IP

PROFI
NET



- Industrial grade ethernet connectivity.
- UL Listed – Communications & Data
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- Connector Rating
 Transmission Characteristic: Category 5e / ISO Class D
 - 4 wire to 100 MBit/s
 - 8 wire to 1,000 MBit/s (1 GBit/s)



	4-pole	8-pole
13		
Male Straight	7700-14541-xxxxxxx	7700-17541-xxxxxxx
Male 90°	7700-14561-xxxxxxx	7700-17561-xxxxxxx
RJ45	7700-74101-xxxxxxx	7700-74118-xxxxxxx
Female Receptacle	7700-14511-xxxxxxx	7700-17511-xxxxxxx
Male Str. to Male Str.	7700-44511-xxxxxxx	7700-48511-xxxxxxx
Male Str. to Male 90°	7700-44541-xxxxxxx	7700-48541-xxxxxxx
Male 90° to Male 90°	7700-44561-xxxxxxx	7700-48561-xxxxxxx
Male Str. to Fem. Str.	7700-44571-xxxxxxx	7700-48571-xxxxxxx
Male Straight to RJ45	7700-44711-xxxxxxx	7700-48521-xxxxxxx
Male 90° to RJ45	7700-44761-xxxxxxx	7700-48551-xxxxxxx
RJ45 to RJ45	7700-74301-xxxxxxx	7700-74718-xxxxxxx
Fem. Recept. to RJ45	7700-44851-xxxxxxx	7700-48851-xxxxxxx

Cable Code (xxx)			
1. Type	2. Color	4-pole	8-pole
Ethernet/IP SF/UTP 24AWG c(UL)us Type CM	Teal TPE	S4U	S4W
ProfiNet SF/UTP 22AWG c(UL)us Type CM	Green TPE	S7V	

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

ETHERNET: X-Code



	x-code
13	
Nominal Voltage	60V DC
Rated Current	0.5A per pin
Male Straight	7_00-21001 -xxxxxxx
Male 90°	7_00-21021 -xxxxxxx
Male Str. to Male Str.	7_00-51001 -xxxxxxx
Male Str. to Male 90°	7_00-51011 -xxxxxxx
Male 90° to Male 90°	7_00-51021 -xxxxxxx
Male Straight to RJ45	7_00-51101 -xxxxxxx
Male 90° to RJ45	7_00-51201 -xxxxxxx
Fem. Recept. to RJ45	7_00-51551 -xxxxxxx

- High speed industrial grade ethernet connectivity
- UL Listed – Communications & Data
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- Connector Rating
Transmission Characteristic: Category 6a / ISO Class Ea
- 8 wire to 10 GBit/s



Cable Code (xxx)		
1. Type	2. Color	8-pole
Use the 7700 prefix with the following cable types		
High Flex Industrial Ethernet, CAT6a, SF/UTP 26AWG, c(UL)us CMX Outdoor - CMR	Teal TPE	S4X
Use the 7000 prefix with the following cable types		
Industrial Ethernet, CAT7, S/FTP 26AWG c(UR)us AWM	Green PUR	790

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

| MINI (7/8"): 3 - 5-pole



	3-pole	4-pole	5-pole
24			
Nominal Voltage	600V AC/DC		
Rated Current	12A per pin	10A per pin	9A per pin
Male Straight	7700-A3001-xxxxxyyy	7700-A4001-xxxxxyyy	7700-A5001-xxxxxyyy
Male 90°	7700-A3011-xxxxxyyy	7700-A4011-xxxxxyyy	7700-A5011-xxxxxyyy
Female Straight	7700-A3021-xxxxxyyy	7700-A4021-xxxxxyyy	7700-A5021-xxxxxyyy
Female 90°	7700-A3031-xxxxxyyy	7700-A4031-xxxxxyyy	7700-A5031-xxxxxyyy
Male Str. to Female Str.	7700-A3A01-xxxxxyyy	7700-A4A01-xxxxxyyy	7700-A5A01-xxxxxyyy
Male 90° to Female Str.	7700-A3A11-xxxxxyyy	7700-A4A11-xxxxxyyy	7700-A5A11-xxxxxyyy
Male Str. to Female 90°	7700-A3A21-xxxxxyyy	7700-A4A21-xxxxxyyy	7700-A5A21-xxxxxyyy
Male 90° to Female 90°	7700-A3A31-xxxxxyyy	7700-A4A31-xxxxxyyy	7700-A5A31-xxxxxyyy

- The established power connector for I/O modules and field devices.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution.
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- TPE has TC-ER and FT4 flame ratings for use in cable tray and exposed runs, also with an expanded temperature range, oil, UV and weld slag resistant.
- PVC (STOOW) is a Service Cord with Oil and Water resistance.
- PUR offers high flexibility and abrasion resistance



Cable Code (xxx)				
1. Type	2. Color	3-pole	4-pole	5-pole
	IEC			
TPE (18AWG)	Yellow		150	161
TPE (16AWG)			U0C	
PUR	Black	UMB	UMC	UMD

Cable Code (xxx)				
1. Type	2. Color	3-pole	4-pole	5-pole
	NEC			
TPE (16AWG)	Yellow	U1B	U1C	U1D
	Red	U5B		
PVC	Yellow	UBB	UBC	UBD

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

Mini (7/8")

M12 Power: DC



- The next generation high current DC power connector for I/O modules and field devices.
- UL Listed - Power Cable Assemblies for Industrial Machinery
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- TPE has TC-ER and FT4 flame ratings for use in cable tray and exposed runs, also with an expanded temperature range, oil, UV and weld slag resistant.
- PUR offers high flexibility and abrasion resistance



	L-code		T-code
	4-pole - Black	5-pole - Gray	4-pole
17			
Nominal Voltage	63V AC/DC		
Rated Current	12-16A* per pin		12A per pin
Male Straight	7_00-P4101- xxxxyyy	7_00-P4201- xxxxyyy	7_00-P7201- xxxxyyy
Male 90°	7_00-P4111- xxxxyyy	7_00-P4211- xxxxyyy	7_00-P7211- xxxxyyy
Female Straight	7_00-P4121- xxxxyyy	7_00-P4221- xxxxyyy	7_00-P7221- xxxxyyy
Female 90°	7_00-P4131- xxxxyyy	7_00-P4231- xxxxyyy	7_00-P7231- xxxxyyy
Male Str. to Female Str.	7_00-P4141- xxxxyyy	7_00-P4241- xxxxyyy	7_00-P7241- xxxxyyy
Male Str. to Female 90°	7_00-P4151- xxxxyyy	7_00-P4251- xxxxyyy	7_00-P7251- xxxxyyy
Male 90° to Female Str.	7_00-P4161- xxxxyyy	7_00-P4261- xxxxyyy	7_00-P7261- xxxxyyy
Male 90° to Female 90°	7_00-P4171- xxxxyyy	7_00-P4271- xxxxyyy	7_00-P7271- xxxxyyy

*16A only achievable with 14AWG (2.5mm²) wire

Cable Code (xxx)					
		4-pole L	5-pole L	4-pole T	
Type	Size	Color	Cable Code		
Use the 7000 prefix with the following cable types					
PUR UL/CSA+ drag chain	1.5mm ²	Black	P07	P04	P07
Use the 7700 prefix with the following cable types					
TPE UL/CSA, TC-ER, IEC	16AWG	Yellow	U0C	U0D	U0C
	14AWG*		U0N	U0P	U0N

*14AWG only compatible with straight connectors

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

M12 Power

| M12 Power: AC



	S-code	K-code
	4-pole	5-pole
17		
Nominal Voltage	630V AC/DC	
Rated Current	12A per pin	
Male Straight	7_00-P6201 -xxxxxxx	7_00-P3201 -xxxxxxx
Male 90°	7_00-P6211 -xxxxxxx	7_00-P3211 -xxxxxxx
Female Straight	7_00-P6221 -xxxxxxx	7_00-P3221 -xxxxxxx
Female 90°	7_00-P6231 -xxxxxxx	7_00-P3231 -xxxxxxx
Male Str. to Female Str.	7_00-P6241 -xxxxxxx	7_00-P3241 -xxxxxxx
Male Str. to Female 90°	7_00-P6251 -xxxxxxx	7_00-P3251 -xxxxxxx
Male 90° to Female Str.	7_00-P6261 -xxxxxxx	7_00-P3261 -xxxxxxx
Male 90° to Female 90°	7_00-P6271 -xxxxxxx	7_00-P3271 -xxxxxxx

- High current and high voltage AC connectivity for motors and field devices.
- UL Listed - Power Cable Assemblies for Industrial Machinery
- Featuring UL Listed cable styles for both NEC & NFPA79 Installation Spaces.
- TPE has TC-ER and FT4 flame ratings for use in cable tray and exposed runs, also with an expanded temperature range, oil, UV and weld slag resistant.
- PUR offers high flexibility and abrasion resistance



Cable Code (xxx)				
			4-pole S	5-pole K
Type	Size	Color	Cable Code	
Use the 7000 prefix with the following cable types				
PUR UL/CSA+ drag chain	1.5mm ²	Black	P16	P15
Use the 7700 prefix with the following cable types				
TPE UL/CSA, TC-ER, IEC	14AWG*	Black	U9N	U9P

*14AWG only compatible with straight connectors

Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

| Food & Beverage Pro



- Sensor and Actuator connections to meet the harsh cleaning requirements of the food processing industry.
- UL Listed - Cable Assemblies for Industrial Control and Signal Distribution.
- Hygienic design using FDA Compliant materials
- Designed for regular IP69K cleaning along with Ecolab/Diversey chemical compatibility.



	3-pole	4-pole	5-pole	8-pole
14				
M12 Male Straight	7024-12001-xxxxxxx	7024-12021-xxxxxxx	7024-12041-xxxxxxx	7024-17001-xxxxxxx
M12 Male 90°	7024-12081-xxxxxxx	7024-12101-xxxxxxx	7024-12121-xxxxxxx	7024-17021-xxxxxxx
M12 Female Straight	7024-12181-xxxxxxx	7024-12221-xxxxxxx	7024-12241-xxxxxxx	7024-17041-xxxxxxx
M12 Female 90°	7024-12321-xxxxxxx	7024-12341-xxxxxxx	7024-12361-xxxxxxx	7024-17061-xxxxxxx
M12 Female 90° LED	7024-12381-xxxxxxx	7024-12421-xxxxxxx	7024-12441-xxxxxxx	
M12 Male Str - M12 Female Str	7024-40001-xxxxxxx	7024-40021-xxxxxxx	7024-40041-xxxxxxx	7024-48001-xxxxxxx
M12 Male Str - M12 Female 90°	7024-40101-xxxxxxx	7024-40121-xxxxxxx	7024-40141-xxxxxxx	7024-48011-xxxxxxx
M12 Male Str - M12 Female 90° LED		7024-40341-xxxxxxx	7024-40361-xxxxxxx	
M12 Male 90° - M12 Female 90°	7024-40241-xxxxxxx	7024-40261-xxxxxxx	7024-40281-xxxxxxx	7024-48021-xxxxxxx

Cable Code (xxx)					
1. Type	2. Color	3-pole	4-pole	5-pole	8-pole
TPE-S	Ice Blue	315	321	339	312

Standard Lengths in Meters (yyyy)						
Single Ended				Double Ended		
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)
				2 (0200)	3 (0300)	5 (0500)
						10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

| MDC: Mobile



	2-pin	3-pin	4-pin	6-pin
Nominal Voltage	12-230V AC/DC			
Rated Current	8A per pin			
Plug	7072-72011- xxxxxxx	7072-72081- xxxxxxx	7072-72161- xxxxxxx	7072-72221- xxxxxxx
Socket	7072-72301- xxxxxxx	7072-72381- xxxxxxx	7072-72461- xxxxxxx	7072-72521- xxxxxxx
Plug - Socket	7072-77001- xxxxxxx	7072-77031- xxxxxxx	7072-77061- xxxxxxx	7072-77121- xxxxxxx
Plug - Plug	7072-77005- xxxxxxx		7072-77091- xxxxxxx	



For other styles,
check out our MDC Compact Flyer

- Mobile, Deutsch Style connectors interchangeable with DT, AT and ML-XT series connectors
- Fully welded and potted connector - no assembly required
- IP68 Rating

IP68

Cable Code (xxx)					
1. Type	2. Color	2-pole	3-pole	4-pole	6-pole
PUR	Black	754	564	569	572

Standard Lengths in Meters (yyyy)						
Single Ended				Double Ended		
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)
				2 (0200)	3 (0300)	5 (0500)
						10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

| MSUD: DIN



- Industry standard connections for Valves and Sensors
- Wire Diagram located on each valve plug
- Fully Potted - Resistant to shock and vibration
- Captured Gasket / IP67 Sealed
- Choice of cable color and type (see chart below)



Circuit		Form				
		A 18mm	B 10mm	BI 11mm	C 8mm	CI 9.4mm
24V	LED	18001	10001	11001	80001	94001
	LED + Supp	18021	10021	11021	80021	94021
	LED + Supp, PE@180		10081	11081		
	Pressure Switch with LED	18121 18141				
110V	LED	18011			80011	
	LED + Supp	18041	10041	11041	80041	94041
	LED + Supp, PE@180			11141		
230V	LED + Supp	18061		11051		
	Without Comp.	18081	10061	11061	80061	94061
	Pressure Switch Without Comp.	18111			80141	94141

Cable Code (xxx)			
1. Type	2. Color	3-pole	4-pole
PVC	Yellow	016	017
	Gray	216	217
	Black	616	617
PUR/PVC	Yellow	026	027
	Gray	226	227
	Black	626	627
PUR (Type 3) Halogen Free Flex	Yellow	036	037
	Gray	236	237
	Black	636	637
PUR UL/CSA+drag chain	Yellow	056	057
	Gray	256	257
	Black	656	657

To build your part number use the guide below:

7000 - Form Number from the chart above - xxxyyy

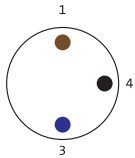


For other styles,
check out our Valve Plug brochure

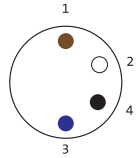
Standard Lengths in Meters (yyyy)							
Single Ended				Double Ended			
1.5 (0150)	3 (0300)	5 (0500)	10 (1000)	0.3 (0030)	0.6 (0060)	1 (0100)	1.5 (0150)
				2 (0200)	3 (0300)	5 (0500)	10 (1000)

Need something longer? Shorter? Ask us about other available lengths.

| M8 Pin & Wire Color Assignments

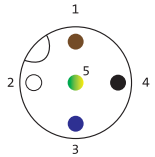


- 1. Brown (+24)
- 4. Black (S)
- 3. Blue (-)

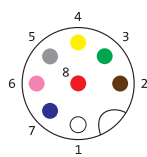


- 1. Brown (+)
- 2. White (N/O)
- 3. Blue (-)
- 4. Black (N/C)

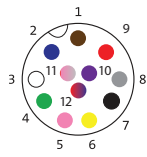
| M12 Pin & Wire Color Assignments



- 1. Brown (+24)
- 2. White (N/O)
- 3. Blue (-)
- 4. Black (N/C)
- 5. Green/Yellow (Earth Gnd)



- 1. White
- 2. Brown
- 3. Green
- 4. Yellow
- 5. Gray
- 6. Pink
- 7. Blue
- 8. Red



- 1. Brown
- 2. Blue
- 3. White
- 4. Green
- 5. Pink
- 6. Yellow
- 7. Black
- 8. Gray
- 9. Red
- 10. Purple
- 11. Red/Blue
- 12. Pink/Gray

All pin outs shown are the male view

| AWG Conversion Chart

Conversion Chart							
AWG	30	28	26	24	22	21	20
mm ²	.05	.08	.14	.25	.34	.38	.5
AWG	18	17	16	14	12	10	8
mm ²	.75	1	1.5	2.5	4	6	10

| M8 & M12 Technical/Cable Spec.

Cable Types	PVC	PUR/PVC	PUR
Material	PVC (Type 1)	PUR/PVC (Type 2)	PUR (Type 3)
UL AWM	2464 80C 300V	20549 80C 300V	20549 80C 300V
Styles	VW1 / FT1	FT2	VW1 / FT1
Flame Retardant	✓	✓	✓
Chemical Resistant	✓	✓	✓
Oil Resistant		✓	✓
UV Resistant			✓
Halogen Free			✓
Weld Slag Resistant			
Flex Rating		2 million	10 million
Torsion Rating			±180
Temperature Range (Flexing)		-5 to 80°C (23 to 176°F)	-25 to 80°C (-13 to 176°F)
Temperature Range (Fixed)	-30 to 80°C (-22 to 176°F)	-30 to 80°C (-22 to 176°F)	-40 to 80°C (-40 to 176°F)

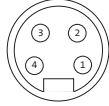
Cable Types	TPE	PUR
Material	TPE	PUR (Type 5)
UL AWM	22 AWG = 20626 90C 300V 18 AWG = 20626 90C 600V	21198 80C 300V
Styles	ITC / PLTC 105C FT4	FT2
Flame Retardant	✓	✓
Chemical Resistant	✓	✓
Oil Resistant	✓	✓
UV Resistant	✓	✓
Halogen Free		✓
Weld Slag Resistant	✓	✓
Flex Rating	10 million	10 million
Torsion Rating	3 million @ ±180	±360
Temperature Range (Flexing)	-20 to 90°C (-4 to 194°F)	-25 to 90°C (-13 to 194°F)
Temperature Range (Fixed)	-40 to 105°C (-40 to 221°F)	-40 to 90°C (-40 to 194°F)

| Mini (7/8") Pin & Wire Color Assignments



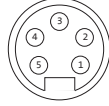
3-Pole

- NEC**
1. Green
2. Black
3. White



4-Pole

- NEC**
1. Black
2. White
3. Red
4. Green



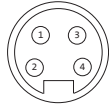
5-Pole

- NEC**
1. White
2. Red
3. Green
4. Orange
5. Black



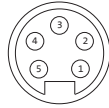
3-Pole

- IEC**
1. Green/Yellow
2. Brown
3. Blue



4-Pole

- IEC**
1. Brown
2. White
3. Blue
4. Black



5-Pole

- IEC**
1. Black
2. Blue
3. Green/Yellow
4. Brown
5. White

All pin outs shown are the male view

| M12 Power Pin & Wire Color Assignments



- 4p L-code**
1. Brown
2. White
3. Blue
4. Black



- 5p L-code**
1. Brown
2. White
3. Blue
4. Black
5. Gray



- T-code**
1. Brown
2. White
3. Blue
4. Black



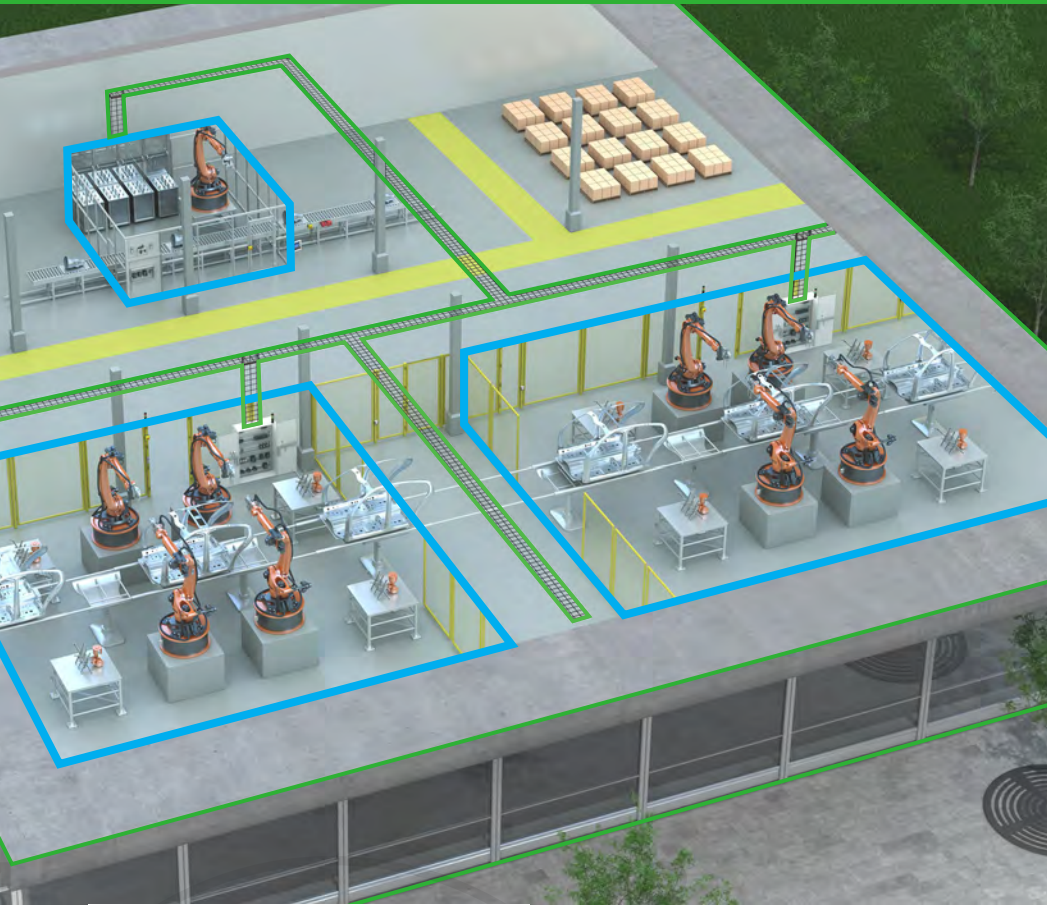
- S-code**
1. Black
2. Black
3. Black
4. Green/
Yellow



- K-code**
1. Brown
2. White
3. Blue
4. Black
5. Green/
Yellow

| Power Technical/Cable Spec.

Cable Types	PVC	PUR	TPE
Material	PVC	PUR	TPE
UL AWM		20234 80C 1000V	21002 105C 600V
Styles	UL/CSA: STOOW 105C (-40C) 600V	UL/CSA AWM	UL: TC-ER 90C (-40C) CSA: CIC-TC FT4
Flame Retardant	✓	✓	✓
Chemical Resistant	✓	✓	✓
Oil Resistant	✓	✓	✓
UV Resistant			✓
Halogen Free		✓	
Weld Slag Resistant			✓
Flex Rating		5 million	2 million
Torsion Rating			
Temperature Range (Flexing)	-20 to 90°C (-4 to 194°F)	-20 to 80°C (-4 to 176°F)	-20 to 90°C (-4 to 194°F)
Temperature Range (Fixed)	-50 to 105°C (-58 to 221°F)	-50 to 80°C (-58 to 176°F)	-50 to 105°C (-58 to 221°F)



Sensor Actuator: M12 - TPE 22AWG



(UL) ITC 105C Sunlight Resistant or PLTC 105C Oil Res II or AWM 90C 600v or CSA CMX-Outdoor-CMG 105C or CSA AWM I/II A/B 90C 300v FT4 CE

- PLTC: for use in a 300V designated tray
- ITC: for use in a 150V designated tray
- CMG: for Communications, general purpose use
- CMX-Outdoor: for Communications, limited use
- Maximum UL Listed Temperature: 105°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: CSA FT4

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 20626
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 90°C
- Conductor Insulation Rating: 600V

NFPA 79

Power: Mini (7/8") - TPE 16AWG



(UL) TC-ER 90C (-40C) SUNLIGHT RESISTANT OIL RES II 600V OR AWM 105C 600V OR CSA CIC-TC 105C (-40C) 600V FT4

- TC-ER: for use in 600V designated tray. Exposed run permitted.
- Maximum UL Listed Temperature: 90°C
- Minimum UL Listed Temperature: -40°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: CSA FT4

NEC / NFPA 70

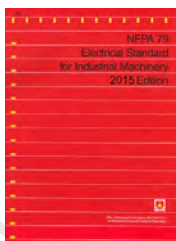
- Appliance Wiring Material: AWM Style 20626
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 105°C
- Conductor Insulation Rating: 600V

NFPA 79



NEC / NFPA 70
UL Listed Cable Styles for US
National Electric Code (NEC)
NFPA 70 Installation Locations

Represents Zone



NFPA 79
UL Recognized Cable Styles for NFPA 79 Machinery
Installation Locations

Represents Zone

Reference

UL LISTINGS FOR INDUSTRIAL CABLE

“UL Listed” shows that a cable has been tested and proven for a specific use. This ensures the cable matches the UL Standards and meets the requirements of the National Electric Code (NEC). In North America cables with a UL Listing are typically used for field wiring.

Legend	Installation Type	NEC Compliance	Agency Approval	Applicable Sizes	Details and Specification	
TC	Tray Cable	Article 336	UL 1277	18-8 AWG	<ul style="list-style-type: none"> For use in 600v Designated Tray Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEE1202 Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Cables are rated 600V Oil Resistant if so marked
TC-ER	Tray Cable - Exposed Run				<ul style="list-style-type: none"> As specified above 	<ul style="list-style-type: none"> Exposed run permitted at intervals not exceeding 1.8m/6ft
PLTC	Power Limited Tray Cable	Article 725	UL 13	22-12 AWG	<ul style="list-style-type: none"> For use in 300v Designated Tray Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEE1202 Sunlight Resistant 	<ul style="list-style-type: none"> Cables are rated 300v Oil Resistant if so marked
PLTC-ER	Power Limited Tray Cable - Exposed Run				<ul style="list-style-type: none"> As specified above 	<ul style="list-style-type: none"> Exposed run permitted at intervals not exceeding 1.8m/6ft
ITC	Instrumentation Tray Cable	Article 727	UL 2250	22-12 AWG	<ul style="list-style-type: none"> For use in 150v Designated Tray Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEE1202 Sunlight Resistant 	<ul style="list-style-type: none"> Cables are rated 300v Oil Resistant if so marked
ITC-ER	Instrumentation Tray Cable - Exposed Run				<ul style="list-style-type: none"> As specified above 	<ul style="list-style-type: none"> Exposed run permitted at intervals not exceeding 1.8m/6ft
CMP	Communications Cable, Plenum	Article 800	UL 444		<ul style="list-style-type: none"> Flame Rating: Plenum (NFPA 262/UL 910) or CSA FT7 Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Oil Resistant if so marked
CMR	Communications Cable, Riser				<ul style="list-style-type: none"> Flame Rating: Riser (UL 1666) Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Oil Resistant if so marked
CMG	Communications Cable, General Purpose				<ul style="list-style-type: none"> Flame Rating: CSA FT4 Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Oil Resistant if so marked
CM	Communications Cable, General Purpose				<ul style="list-style-type: none"> Flame Rating: Vertical-Tray (UL 1685) Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Oil Resistant if so marked
CMX	Communications Cable, Limited Use				<ul style="list-style-type: none"> Flame Rating: UL VW-1 Sunlight Resistant if so marked 	<ul style="list-style-type: none"> Oil Resistant if so marked

ADDITIONAL CABLE CERTIFICATIONS

Legend	Certification	Details and Specifications	Protocol
SUN. RES.	Sunlight Resistant	Resistant to 720 hours of harsh UV and heat	UL 444
OIL RES I	Oil Resistant I	Test: Oil immersion for 4 days at 100°C Certification: Exposure to oil at temperatures not in excess of 60°C (140°F)	UL 1277
OIL RES II	Oil Resistant II	Test: Oil immersion for 60 days at 75°C Certification: Exposure to oil at temperatures not in excess of 75°C (167°F)	
CMP	Flame Rating: Plenum	Test: 88kW horizontal. Exposed to flame for 20min. Flame spread can't exceed 5ft	NFPA 262
CMR	Flame Rating: Riser	Test: 154kW vertical. Exposed to flame for 30min. Flame spread can't exceed 12ft	UL 1666

Legend	Certification	Details and Specifications	Protocol
FT4	Flame Rating: FT4	Test: 20kW vertical. Exposed to flame for 20min. < 1.5m vertical flame spread	CSA FT4
CM, PLTC, ...	Flame Rating: Vertical Tray	Test: 20kW vertical. Exposed to flame for 20min. < 8' vertical flame spread	UL 1685
VW-1	Flame Rating: VW-1	Test: 500W vertical. Requires < 10" vertical flame spread	UL 1581
FT1	Flame Rating: FT1	Test: 500W vertical. Exposed to flame for five 15 sec. applications, <25% of a paper indicator burnt	CSA FT1
FT2	Flame Rating: FT2	Test: 500W horizontal. Exposed to flame for five 15 sec. applications, <100mm from end to end	CSA FT2



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