

# Cable DMX512. Standard cables for the DMX 512 signal.

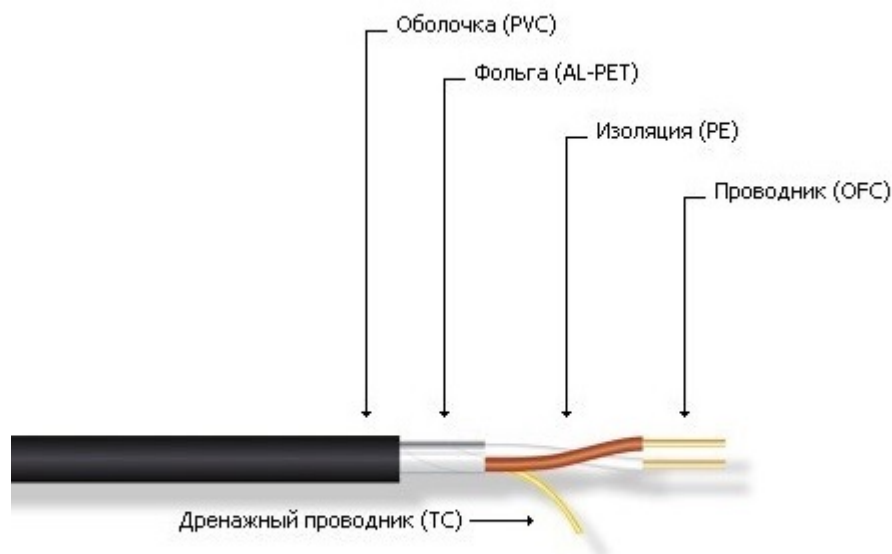
A robust DMX512 system starts with high quality cables of a certain type. If the reliability of the system is very important, then first of all you should pay attention to the cables and connectors, and also to their correct installation. You can build a [DMX](#) system and use second-rate cables (and even ordinary electrical wires like those that go to your electric bell), however on one nightmarish day such a system can suddenly fail without any visible Reasons in the midst of an important show.



The cable must comply with the EIA485 standard (RS485) and consist of one or two low-capacitance twisted pairs, braided and screened with foil. In order for the wires to have sufficient mechanical strength and minimum voltage drop on long lines, they must correspond to the American wire gauge of 24 AWG (7 / 0.2) or higher.



The second pair of wires can be present in the cable as a spare, or can be used to transmit other signals. Some dimmers use this pair to report faults and the status of the dimmer. Check if your [DMX](#) uses the second pair (currently, in most cases, this pair is not used).



When you are wiring for permanent use, it is recommended that you use cables with at least two twisted pairs in order to be able to use these lines with future versions of the DMX512 protocol. Currently, some manufacturers are already releasing systems using a second twisted pair to transfer information from dimmers to the console. In addition, the additional twisted pair will not interfere if there is an open or short on the main pair.

The cable shield is connected to the pins of connector 1. The first (main) twisted pair is connected to pins 2 and 3. The second twisted pair (if any) is connected to pins 4 and 5. The screen **MUST** be connected at both ends of the cable even if the receiver is not grounded. Otherwise, the cable will not be shielded.

The screen **MUST NOT** be connected or in contact with any other part of the connectors (for example, with the case), because Usually the connector housings are connected to the ground supply voltage, and such a connection will lead to problems related to contour earth currents (see subsection «Grounding»).

## Cable types.

The «Cable Type Table» in the appendix at the end of this manual is not a complete list of all cables that may be suitable for use with the DMX512. For this purpose, any twisted-pair cable with a wave impedance of 120 Ohms, shielded and conforming to the EIA485 standard, is suitable. The cable assortment required will depend on the length of the line, but it is recommended to use cables with ordinal numbers of at least 22 AWG, 24 AWG.

AWG stands for American Wire Gauge. H E

## Cable Table

Cable Type Table

Type:	Pairs:	ZW:	Jacket:	AWG	Use:	Temp:
<b>Belden cables:</b>						
1162A	1	100	PVC	20	UL2498	80
1215A	2	150	PVC	26	IBM type 6 office cable	75
1269A	2	100	PTFE	22 (solid)	High temp, Plenum cable	200
8102	2	100	PVC	24	UL2919	80
8132	2	120	PVC	28	UL2919	80
8162	2	100	PVC	24	UL2493	60
8227	1	100	PVC	20	UL2498	80
82729	2	100	PTFE	24	High temp, Plenum cable	200
88102	2	100	PTFE	24	High temp, Plenum cable	200
89182	1	150	PTFE	22	High temp, Plenum cable	200
89207	1	100	PTFE	20	High temp, Plenum cable	200
89696	2	100	PTFE	22	High temp, Plenum cable	200
89729	2	100	PTFE	24	High temp, Plenum cable	200
89855	2	100	PTFE	22	High temp, Plenum cable	200
9182	1	150	PVC	22	UL2668	60
9207	1	100	PVC	20	Flame-proof	75
9271	1	124	PVC	25	UL2092	60
9729	2	100	PVC	24	UL2493	60
9804	2	100	PVC	28	UL2960	60
9829	2	100	PVC	24	UL2919	80
9841	1	120	PVC	24	UL2919	80
9842	2	120	PVC	24	UL2919	80
<b>Proplex cables:</b>						
PC222P	1	110	Polyurethane	22	Heavy duty and portable	105
PC222T	1	110	PVC	22	UL2464	105
PC224P	2	110	Polyurethane			
PC224T	2	110	PVC	22	UL2464	105
PC226T	3	110	PVC	22	UL2464	
<b>Alpha cables:</b>						
9109	1	100	FEP	20	High temp	150
9816	1	95	PVC	18	Large diameter	80
9817	1	100	PVC	20	UL2498	80
9818	1	100	PVC	20		
9818D	1	100	Polyurethane	20	Direct burial	80
9821	1	124	PVC	25	UL2092	80
9823	1	150	PVC	22	UL2772	80

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