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Typical automotive bus systems and cabling

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- Overview over typical automotive bus systems, their voltage levels and cables and connectors

system	LIN	CAN (500 kbit/s*)	FlexRay	USB (HiSpeed)	HSVL („LVDS“)	RF-signals
Data rate	20 kbit/s	500 kbit/s	10 Mbit/s	480 Mbit/s	200…3000 Mbit/s	Antenna signals (AM, FM, ISM, WLAN, Bluetooth, …)
amplitude	12 V	2V	0,6V	0,4V	0,25…0,45V	different
differential?	single-ended	differential	differential	differential	differential	single-ended
typical cabling	Single wire, e.g. 0,35mm²	UTP 2x0,35mm² (future: UTP 2x0,17mm²)	UTP 2x0,35mm² (e.g. FLR9Y 2x0,35 mm²-SN) (future: UTP 2x0,17mm²)	STQ 4x0,5mm² (e.g. Leoni Dacar566)	STQ 4x0,14mm² (e.g. Leoni Dacar535-2)	Coax (e.g. Leoni Dacar302)
DC resistance max. values	125 mΩ/m	55 mΩ/m (for 0,35mm²)	55 mΩ/m (for 0,35mm²)	35 mΩ/m	125 mΩ/m	e.g. 50 mΩ/m (Leoni Dacar 302)
Differential Cable impedance (Z_{diff} Ω)	-	120 (±12)	100 (±10)	90 (±15)	100 (±15)	50 (±3)
Shield?	no	no	no	yes (braid + foil)	yes (braid + foil)	yes (braid + foil)
conductor	stranded (e.g. 7)	Stranded (e.g. 7)	stranded (e.g. 7x0,26)	stranded (e.g. 19x0,182)	stranded (e.g. 7x0,16)	stranded (e.g. 7x0,27)
Jacketed?	-	no	no	yes	yes	yes
typical connector	different multi pin connectors (e.g. Tyco MQS)	different multi pin connectors (e.g. Tyco MQS)	different multi pin connectors (e.g. Tyco MQS)	Rosenberger HSD	Rosenberger HSD	FAKRA

*) different data rates are possible for CAN, typically are 125kbit/s or 500kbit/s, possible are 667kbit/s or up to 1Mbit/s