

# Electronic





	Type	Technology	Power	Connection type	Ohmic values/ Data see	ST0	ST0N	ST1	ST4	M0N	VCS0	VNS0	NNS0	NNS0- PI	VNS2	CS1	CS1G	NS3	NS3G	HS2	HS2G	JMS3	FST
<b>Potentiometer</b>	PQxx	wire-wound	1,5 W	screw/soldered connection	TI-POTI-1																		
	PFxx	wire-wound	6 W	screw connection	TI-POTI-2																		
	PFÖxx	wire-wound	6 W	screw connection	TI-POTI-2																		
	DP60xx	wire-wound	50 W	screw connection	TI-POTI-2																		
	RxK	cermet	2 W	soldered connection	TI-POTI-3																		
	PW0045xx	wire-wound	1,5 W	soldered connection	TI-POTI-2																		
	Bxx	conductive	0,5 W	soldered connection	TI-POTI-5																		
	BxxK	conductive	0,5 W	screw connection	TI-POTI-5																		
	BLRxx	conductive	0,5 W	micro-match-plug	TI-POTI-6																		
	Gxx	conductive	0,5 W	soldered connection	TI-POTI-5																		
	GxxK	conductive	0,5 W	screw connection	TI-POTI-5																		
	GLRxx	conductive	0,5 W	micro-match-plug	TI-POTI-6																		
	M55	conductive	0,5 W	soldered connection	TI-POTI-5																		
	M55K	conductive	0,5 W	screw connection	TI-POTI-5																		
<b>Potentiometer with amplifier</b>	Exd-PL310-5 m Exd-PL310-10 m	conductive, Exd conductive, Exd	0,5 W 0,5 W	connection type 5 m TI-POTI-4	TI-POTI-4	10 m																	
	Exd-PW45-5 m	wire-wound, Exd	1 W	connection type 5 m																			
	Exd-PW45-10-m	wire-wound, Exd	1 W	connection type 10 m																			
	CAG(S)20020	20...0...20 mA	24 VDC	screw connection	TI-PV-1																		
	CAG(S)20420	20...4...20 mA	24 VDC	screw connection	TI-PV-1																		
	CAG(S)41220	4...12...20 mA	24 VDC	screw connection	TI-PV-1																		
<b>Amplifier for potentiometer</b>	CAB(S)20020	20...0...20 mA	24 VDC	screw connection	TI-PV-1																		
	CAB(S)20420	20...4...20 mA	24 VDC	screw connection	TI-PV-1																		
	CAB(S)41220	4...12...20 mA	24 VDC	screw connection	TI-PV-1																		
	ESS109	Ventilverstärker	24 VDC	installation in joystick	TI-PV-3																		
	ESS098	2x (6...12...18 VDC)	24 VDC	installation in joystick	TI-PV-4																		
	ESS149-4-12-20	2x (20...4...20 mA)	24 VDC	installation in joystick	TI-PV-5-A																		
<b>Inductive encoder</b>	ESS149-20-4-20	2x (4...12...20 mA)	24 VDC	installation in joystick	TI-PV-5-A																		
	DG0 115/50	50...0...50 VAC	115 VAC	screw connection	TI-DG0																		
	DG0 230/50	50...0...50 VAC	230 VAC	screw connection	TI-DG0																		
	DGG0		115 VAC	screw connection	TI-DDG0																		
	DGG0+ESS030	-10...0...+10 V	115 VAC	screw connection	TI-DDG0																		

## Note:

- Price per unit
- Prices for potentiometer, encoder, Hall-sensors including mounting to joystick
- Connection as indicated connection cables, servo clamps for an extra charge
- Use BLRxx or GLRxx potentiometers for bus interfaces
- With ESS127 (ProfiNet Profi Safe protocol), 1 potentiometer + 1 Hall sensor are required per axis for joysticks.

• Consider an extra charge for the electronic safety enclosure when installing amplifiers, bus interfaces into the joystick (VNS0, NNS0) or select the corresponding joystick version (CS1, NS3G, HS2G).

• The capacitive sensor system requires transmitter and evaluation electronics.

x = see corresponding joystick

xx = Placeholder for different types.

CAG... CAB... = with medium short-circuit distance

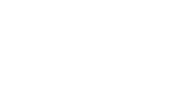
CAGS... CABGS... = without medium short-circuit distance



	Type	Output	Supply	Connection type/installation	Data see	ST0	STON	ST1	ST4	M0N	VCS0	VNS0	NNS0	NNS0-PI	VNS2	CS1	CS1G	NS3	NS3G	HS2	HS2G	JMS3	FST
 Optoelectronic encoder	OERxx	8-Bit Code/current	24 VDC	D-Sub-plug	TI-Encoder-1+2																		
	OERHxx	8-Bit Code/current	24 VDC	D-Sub-plug	TI-Encoder-1+2																		
	OGRPP20xx	-20...0...+20 mA	24 VDC	D-Sub-plug	TI-Encoder-3																		
	OGF6B,OGF6G	6-Bit Code	24 VDC	D-Sub-plug	TI-Encoder-4																		
	OGFR6B,OGFR6G	6-Bit Code	24 VDC	D-Sub-plug	TI-Encoder-4																		
	OGF020,OGF420	20...0(4)...20 mA	24 VDC	D-Sub-plug	TI-Encoder-5																		
	OGFR020,OGFR420	20...0(4)...20 mA	24 VDC	D-Sub-plug	TI-Encoder-5																		
	OGFP20	-20...0...+20 mA	24 VDC	D-Sub-plug	TI-Encoder-6																		
	OGP-DP	ProfiBus-DP	24 VDC	screw connection	TI-Encoder-7																		
	OEP-DP	ProfiBus-DP	24 VDC	screw connection	TI-Encoder-8																		
 Hall-sensors	Servo bracket	für OGD-DP, OEP-DP																					
	A1xx	0,5...2,5...4,5 VDC ↑↑	5 VDC		TI-HS2, TI-NS3																		
	A2xx	0,5...2,5...4,5 VDC ↑↓	5 VDC		TI-HS2, TI-NS3																		
 Bus interfaces	Type	Bus system	Supply	Connection type/installation	Data see																		
	ESS160-USB	USB	4,5...5,5 VDC		TI-USB																		
	ESS100A CAN2.0B		9,5...32 VDC	installation in joystick	TI-CAN-1																		
	ESS147I-CANopen	CANopen	10...36 VDC	installation in joystick	TI-HS2																		
	ESS147I-J1939	SAE-J1939-71	10...36 VDC	installation in joystick	TI-HS2																		
	ESS157I-CANopen	CANopen	10...36 VDC	installation in joystick	TI-CAN-3																		
	ESS157I-J1939	SAE-J1939-71	10...36 VDC	installation in joystick	TI-CAN-3																		
	ESS094A	ProfiBus-DP	10...36 VDC	installation in joystick	TI-ProfiBus-1																		
	ESS094B	ProfiBus-DP	10...36 VDC	installation in joystick																			
	ESS130	I/O-board for ESS094A, -B		installation in joystick	TI-ProfiBus-2																		
	ESS132	ProfiNet I/O	12...35 VDC	installation in joystick	TI-ProfiNet																		
	ESS127	ProfiNet I/O with Profi-Safe-Protocol	12...35 VDC	installation in joystick																			
	ESS150	Multibus	12...35 VDC	installation in joystick	TI-BUS																		
 Capacitive sensors	Type	Designation	Supply	Designation	Data see																		
	ESS080K	Electronic transmitter, round for G41-handle		soldered connection	E-Electronic-3																		
	ESS080K-1	Electronic transmitter, soldered connection		G1-handle	E-Electronic-3	square for																	
	ESS080K-UGxx	Electronic transmitter, soldered connection		for UGxx-handle	E-Electronic-3		€																
	ESS080A	Electronic evaluation	24 VDC +20%	screw connection	E-Electronic-3																		
 Multiplex-system	ESS111	Electronic evaluation	19,2...28,5 VDC	installation in joystick	E-Electronic-4																		
	ESS097-8	Mux-System with 8 19,2...28,8 VDC	relay output	screw connection	E-Electronic-5																		
	ESS097-12	Mux-System with 12 19,2...28,8 VDC	relay output	screw connection	E-Electronic-5																		
 Extension cable	Type	Use for	Lenght	Designation	Data see																		
	SS13463-A-1	OERxx with 8-bit-code	2 m	D-Sub-socket / open cable	TI-Encoder-2																		
	SS13463-B	OERxx/OGFxx with current	2 m	D-Sub-socket / open cable	TI-Encoder-2+5																		
	SS13463-D	OGFxx with 6-bit-code	2 m	D-Sub-socket / open cable	TI-Encoder-4																		
	SS13463-E-5	ProfiBus-supply voltage	2 m	D-Sub-socket / open cable																			

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