

ES series resistive senders

yi6458
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catalogue section 70

Application note: Resistance tables/tolerances



Please refer to installation instructions before installing this product. A visual inspection of this product for damage during shipping is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product. If in doubt, please contact your local Murphy representative.

Overview

Murphy ES series resistive senders are used in the measurement of engine pressure, temperature and fuel levels. Although primarily designed for Murphy EG(S)21 electric gauges and Swichgages, ES series senders can also be used with the measurement inputs of suitably calibrated digital controllers, interfaces and displays (such as the Murphy Autostart, XM500 or SenderCAN modules). When used with these controls, 2-wire (ES2, insulated return) senders are recommended for greatest accuracy and reduced susceptibility to electrical ground/earth noise.



Sender resistance

The tables below show typical variations in ES series output resistance versus input pressure, temperature and fuel level. Part numbers for the available sender models are also given. For further details on our range of electric gauges, senders and adaptors, please visit www.fwmurphy.co.uk/eg.

Note: the resistance values below apply to senders with model prefix ES or ES2, which are used to drive only one gauge or Swichgage. Senders with model prefix ESD are intended to drive 2 gages/Swichgages, with half the resistance shown for a given pressure/temperature/level.

ESP/ES2P pressure sender resistance, 0 – 100 PSI (0 – 689 kPa)
(tolerance points with min/max resistances shown in bold).

PSI kPa	0	10	20	30	40	50	60	70	80	90	100
R minimum (Ohm)	227	-	-	-	-	92	-	-	-	-	22
R nominal (Ohm)	240	205	171	143	123	103	88	74	60	47	33
R maximum (Ohm)	257	-	-	-	-	114	-	-	-	-	49

pressure range	input thread	part numbers	
		2 wire (insulated return, ES2P models)	1 wire (earth return, ESP models)
0 - 100 PSI / 7 bar §	1/8" NPT	00.00.3042	00.00.3029
0 - 100 PSI / 7 bar	M10 x 1.0	n/a	00.00.4570

EST/ES2T temperature sender resistance, 120/150°C (250/0 – 150°C)
(tolerance points with min/max resistances shown in bold)

°C	0	10	20	30	37.8	40	50	60	70	80	82.2	90	100	104.4	110	120	130	137.8	140	
°F	32	50	68	86	100	104	122	140	158	176	180	194	212	220	230	248	266	280	284	
R minimum (Ohm)	-	-	-	-	1022	-	-	-	-	-	197	-	-	99	-	-	-	-	39	-
R nominal (Ohm)	7208	4115	2529	1594	-	1029	680	460	321	227	-	164	120	-	89	74	52	-	40	
R maximum (Ohm)	-	-	-	-	1224	-	-	-	-	-	223	-	-	110	-	-	-	-	46	-

temperature range	input thread	part numbers	
		2 wire (insulated return, ES2T models)	1 wire (earth return, EST models)
0 - 120/150°C (250/300F)	1/2" NPT	10.09.0050	00.00.3034
0 - 120/150°C (250/300F)	5/8" UNF	10.09.0051	00.00.3088
0 - 120/150°C (250/300F)	1/8" NPT	10.09.0069	00.00.3084

ESF/ES2F fuel level sender resistance, tank depth 6 – 24" (150 – 600 mm)

Level	full	3/4	1/2	1/4	empty
R nominal (Ohm)	33.5	67	103	153	240

level range	part numbers	
	2 wire (insulated return, ES2F models)	1 wire (earth return, ESF models)
Tank depth 150 – 600mm	00.00.3037	00.00.3024



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