Technical Specifications

www.electrak.co.uk

Technical data

ASTA Approved to
IEC 439-1 and BS EN 60439-1
IEC 439-2 and BS EN 60439-2

Electrak is approved to ISO9001:2000
Assessed Quality Assurance Certificate No. 10270.

Electrak fully complies with the requirements of BS 7671 : 2001 (IEE Wiring Regulations).

Electrical Test Data				
Rated Current (In)		25	40	A
Derating factor for Electrak 32 single sided		-	0.8	
Derating factor for Electrak 32 double sided		0.8	0.7	
Derating factor for Electrak 33 double sided		-	0.8	
Rated Operational Voltage (Ue)		230/415	230/415	V~
Rated Insulation Voltage (Ui)		500	500	V~
Frequency (f)		50/60	50/60	Hz
Rated Impulse withstand voltage		4	4	KV
Busbar Resistance (R_{20})		3.9	2.7	mΩ/m
Resistance (R_1)		4.2	3.0	mΩ/m
Impedance (Z_1)		4.8	3.4	mΩ/m
Reactance (X_1)		2.5	1.6	mΩ/m
Protective conductor		1.5	1.5	mΩ/m
Volt Drops				
Live & Neutral:	Busbars	9.0	6.0	mV/A/m
(R_1+R_2)	Feed unit	3.0	2.4	mV/A
	Tap-Off 0.8m	22	22	mV/A
	Tap-Off 2.0m	52	52	mV/A
	Flexible length assembly 0.5m	5	3.5	mV/A
	Flexible length assembly 2m	20	14	mV/A
Earth Fault Loop				
Impedance :	Busbar	4.5	3.0	mΩ/m
	Earth housing	1.5	1.5	mΩ/m
	Feed unit	2.4	2.4	mΩ
	Tap-Off 0.8m	23	23	mΩ
	Tap-Off 2.0m	53	53	mΩ
	Flexible length assembly 0.5m	2.5	1.75	mV/A
	Flexible length assembly 2m	10	7	mV/A
Rated Conditional short-circuit current (Icc)		16	16	KA
Rated short time withstand current (Icw) at 1 sec		0.65	1	KA
Rated peak short-circuit current (Ipk)		0.975	1.5	KA
Direct protection by		Enclosure		
Indirect protection by		Protective circuit		
Ambient Temperature		25	25	℃
Mechanical Data				
Number of conductors		2-10	2-10	
Busbar conductor cross sectional area		4	6	mm^2
Cable terminal capacity		6	16	mm^2
Cable terminal capacity bus		1.5	1.5	mm^2
Tap-Off cable 16A		1.5	1.5	mm^2
Tap-Off cable 13A fused		1.5	1.5	mm^2
Tap-Off entry		16	16	mmØ
Feed unit entry holes power		25	25	mmØ
Feed unit entry holes bus		16	16	mmØ
IP rating (optional)		4X (54)	4X (54)	

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Communication Control Circuit

See pages 46-57 in 2006 Electrak catalogue

Type	Bus cable (LSOH)
Construction	Sheathed 0.5mm^2 copper twisted pair
Insulation - conductor	Flame retardant low emission HCL
- sheath	LSOH material
Rated Insulation voltage (Ui) (between power circuit and bus)	500V
Max. bus operating voltage	50V
Max. bus operating current	0.65A
Max. conductor resistance (@20˚C)	73.2Ω/km
Max. mutual capacitance	100nf/km

Material Specifications

Busbar trunking housing	Galvanised Steel
Busbars	High conductivity copper
Busbar insulator	Flame Retardant LSOH to BS7211
Trunking connector/Tap-off entry box/Cable connector	Flame Retardant Polycarbonate
Tap-off Housing	Flame Retardant Polycarbonate
Trunking Connector Blades/Tap-off blades	Copper
Feed unit IP4X	Galvanised Steel
Feed unit IP54	ABS
Flexible length conduit	Flame retardant LSOH nylon
Feed unit terminals/Earth block	Brass
Brackets	Galvanised steel
13A Tap-off, fuse	To BS1362, ASTA approved

Durability

Electrak power distribution systems are well designed and extremely robust. They can be expected to stand up to all normal site conditions. Electrak has been short circuit strength tested by ASTA.

Earth Fault Loop Impedance

BS 7671 : 2001 IEE Wiring Regulations require accurate determination of the total earth loop impedance, which must be sufficiently low to allow the protective device to operate within the specified time, which for socket outlets is 0.4 seconds.
The values relevant to Electrak for calculating the earth fault loop impedance are shown in the electrical test data table.

Busbar Trunking Rating in Ambient Temperatures

Average Ambient Air Temperature	25˚C	30˚C	35˚C	40˚C	45˚C	50˚C
Rating Factor (K1)	1.1	1.05	1	0.95	0.90	0.85

For ambient temperatures other than 35˚C apply the multiplier factor K1 to the rated current.

Busbar Trunking Mechanical Loading

For point loads and evenly distributed loads the maximum weight that can be supported is given below.

Maximum loading for suspended busbar trunking

Fixing distance in metres	m	1.5	2	2.5	3	3.5	4
Max point load (deflection = 1/500 x span)	kg	20	17	13	12	9	7
Max distributed load (deflection = 1/500 x span)	kg	33	28	22	20	15	12
Max point load (deflection = 1/350 x span)	kg	33	24	18	16	10	9
Max distributed load (deflection = 1/350 x span)	kg	55	40	30	26	16	15

Maximum loading for surface mounted busbar trunking

Fixing distance in metres	m	1.5	2	2.5	3	3.5	4
Max point load (deflection = 1/500 x span)	kg	10	6	4.5	4	3.5	3
Max distributed load (deflection = 1/500 x span)	kg	16	10	7.5	7	6	5
Max point load (deflection = 1/350 x span)	kg	13	10	7	6	5	0
Max distributed load (deflection = 1/350 x span)	kg	20	16	11	10	8	0

Notes

1. Where trunking joints occur in the middle of the suspension span, and weight is to be suspended from that point, it is recommened to use a strenghting bracket EEC364 over joint to stop deflection.
2. If the load requirements exceed the above figures please contact the Electrak sales department. For design information and technical specification please contact the Electrak sales department. Suspension rods and fixings should be of suitable size to carry the weight of both the track and suspended load.