

Technical data

7.1 LD general data

Thermal characteristic:

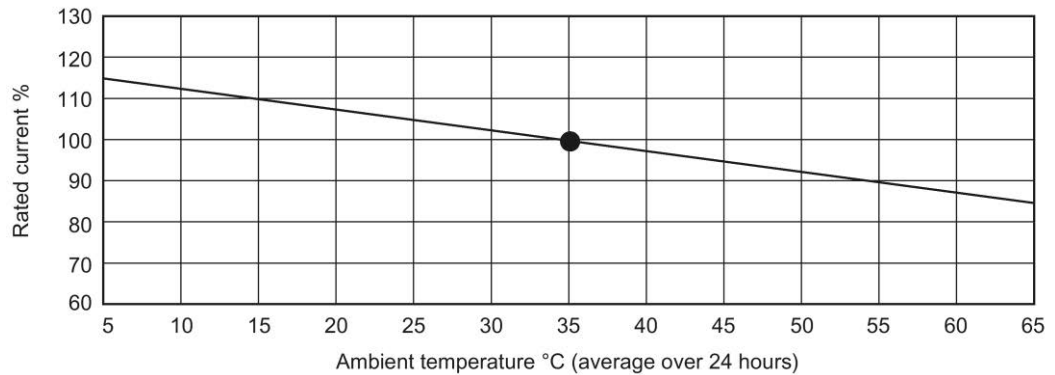


Figure 7-1 Dependence of the rated current on the ambient temperature

Standards and regulations	IEC 61439-1 and -6
Climatic resistance	
• Damp heat, steady state, to IEC 60068-2-78	40 °C/93 %/RH/56d
• Damp heat, cyclic, to IEC 60068-2-30	56 × (25 ... 40 °C/3 h; 40 °C/9 h; 40 ... 25 °C/3 ... 6 h; 25 °C/6 h)/95 % RH
• Cold in accordance with IEC 60068-2-1	-45 °C, 16 h
• Temperature change in accordance with IEC 60068-2-14	-45 °C ... 55 °C; 5 cycles (1 °C/min); holding time min. 30 min
• Salt spray test in accordance with IEC 60068-2-52	Severity grade 3
• Ice formation acc. to IEC 60068-2-61	Test based on a combination of damp heat, cyclic (56 × (25 ... 40 °C/3 h; 40 °C/9 h; 40 ... 25 °C/3 ... 6 h; 25 °C/6 h)/95 % RH) + low temperature (-45 °C, 16 h)
Ambient temperature min./max./24-h mean	°C -5/+40/+35

Standards and regulations		IEC 61439-1 and -6
Environmental classes		Climatic: <ul style="list-style-type: none"> • 1K5 (storage) = 3K7L (operation without exposure to the sun) • 2K2 (transport) Chemically active → salt spray, other contaminants optional <ul style="list-style-type: none"> • 1C2 (storage) = 3C2 (operation) = 2C2 (transport) Biological → covered by IP degrees of protection and type of packaging <ul style="list-style-type: none"> • 1B2 (storage) = 3B2 (operation) = 2B2 (transport) Mechanically active → covered by IP degrees of protection and type of packaging <ul style="list-style-type: none"> • 1S2 (storage) = 3S2 (operation) • 2S2 (transport)
Degree of protection		IP31 ventilated (for horizontal flat busbar position) IP34 ventilated (for horizontal edgewise busbar position) IP54 closed
Standard mounting position		Position of busbars edgewise in the trunking unit with for horizontal routing
Torque for single-bolt terminal	Nm	80
Surface treatment of the contact points of busbars		LDA: nickel-plated and tinned LDC: tinned
Material of trunking units, tap-off units		Sheet steel, powder-coated
Colour of trunking units, tap-off units		RAL 7035 (light grey)
Dimensions		See chapter "Dimension drawings (Page 285)"
Weight		See chapter "Weights (Page 282)"
Rated insulation voltage	V AC/V DC	1000
Overvoltage category III/3		
• for power transmission	V AC	1000
• for power distribution	V AC	400 (690) ¹⁾
Overvoltage category IV/3	V AC	
• for power transmission		690
Rated frequency	Hz	50/60 ²⁾

1) You can obtain tap-off units on request

2) A derating to 95% is to be considered for currents > 800 A at a frequency of 60 Hz.

7.2 Trunking units LDA.4 (4-pole, aluminium)

System-dependent data				LDA142	LDA242	LDA342	LDA441	LDA442	LDA541	LDA542
				PEN=L	PEN=L	PEN=L	PEN=½L	PEN=L	PEN=½L	PEN=L
Rated current $I_e^{(1)}$										
Horizontal edgewise ²⁾	IP34	I_e	A	1100	1250	1600	2000	2000	2500	2500
	IP54	I_e	A	900	1000	1200	1500	1500	1800	1800
Vertical	IP34	I_e	A	950	1100	1250	1700	1700	2100	2100
	IP54	I_e	A	900	1000	1200	1500	1500	1800	1800
Horizontal flat	IP31/IP54	I_e	A	700	750	1000	1200	1200	1700	1700
Impedance per unit length										
Impedance per unit length of the busbars with 50 Hz and busbar temperature 20 °C	Resistance	R'_{20}	mΩ/m	0.060	0.045	0.045	0.030	0.030	0.026	0.026
	Reactance	X'_{20}	mΩ/m	0.046	0.038	0.038	0.024	0.024	0.022	0.021
	Impedance	Z'_{20}	mΩ/m	0.075	0.059	0.059	0.038	0.038	0.034	0.034
Impedance per unit length of the busbars with 50 Hz and busbar temperature 140 °C	Resistance	R'_{140}	mΩ/m	0.088	0.067	0.067	0.044	0.044	0.038	0.038
	Reactance	X'_{140}	mΩ/m	0.046	0.038	0.038	0.024	0.024	0.022	0.021
	Impedance	Z'_{140}	mΩ/m	0.100	0.077	0.077	0.050	0.050	0.044	0.044
Impedance of the fault loop phase - PE(N) at busbar temperature 20 °C	Resistance	R'_{b20} phPE(N)	mΩ/m	0.108	0.086	0.087	0.074	0.058	0.066	0.052
	Reactance	X'_{b-} phPE(N)	mΩ/m	0.097	0.082	0.082	0.061	0.052	0.042	0.048
	Impedance	Z'_{b20} phPE(N)	mΩ/m	0.145	0.119	0.120	0.096	0.078	0.079	0.071
Zero-sequence impedance										
Zero-sequence impedance phases - PE(N) with 50 Hz and busbar temperature 20 °C	Resistance	$R'_{(0)b}$ 20phP E(N)	mΩ/m	0.246	0.195	0.201	0.213	0.126	0.192	0.117
	Reactance	$X'_{(0)b}$ phPE(N)	mΩ/m	0.315	0.258	0.258	0.192	0.177	0.171	0.159
	Impedance	$Z'_{(0)b}$ 20phP E(N)	mΩ/m	0.400	0.327	0.327	0.287	0.217	0.257	0.197
Short-circuit withstand strength										
Rated short-time	r.m.s. value $t = 0.1$ s	I_{cw}	kA	55	70	80	110	110	125	125

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7.2 Trunking units LDA.4 (4-pole, aluminium)

System-dependent data				LDA142	LDA242	LDA342	LDA441	LDA442	LDA541	LDA542
				PEN=L	PEN=L	PEN=L	PEN=½L	PEN=L	PEN=½L	PEN=L
withstand current	r.m.s. value	I_{cw}	kA	40	55	58	80	80	110	110
	t = 1 s									
Rated impulse withstand current	Peak value	I_{pk}	kA	121	154	176	242	242	275	275
Conductor material				Aluminium						
No. of busbars				4	4	4	7	8	7	8
Conductor cross-section	L1, L2, L3	A	mm ²	530	706	706	1060	1060	1232	1232
	PEN	A	mm ²	530	706	706	530	1060	616	1232
Fire load										
Trunking unit without tap-off point			kWh/m	7.08	7.09	7.09	10.87	11.99	10.87	11.99
per tap-off point			kWh	8.32	8.32	8.32	12.04	12.96	12.04	12.96
Max. fixing distances										
at normal mechanical load			m	6	6	6	5	5	5	5

1) Dependent on degree of protection and type of routing

2) Incl. height offsets ≤1.3 m

System-dependent data				LDA641	LDA642	LDA741	LDA742	LDA841	LDA842
				PEN=½L	PEN=L	PEN=½L	PEN=L	PEN=½L	PEN=L
Rated current $I_e^{1)}$									
Horizontal edgewise ²⁾	IP34	I_e	A	3000	3000	3700	3700	4000	4000
	IP54	I_e	A	2000	2000	2400	2400	2700	2700
Vertical	IP34	I_e	A	2300	2300	2800	2800	3400	3400
	IP54	I_e	A	2000	2000	2400	2400	2700	2700
Horizontal flat	IP31/IP54	I_e	A	1800	1800	2200	2200	2350	2350
Impedance per unit length									
Impedance per unit length of the busbars with 50 Hz and busbar temperature 20 °C	Resistance	R'_{20}	mΩ/m	0.022	0.022	0.015	0.016	0.013	0.013
	Reactance	X'_{20}	mΩ/m	0.019	0.019	0.015	0.015	0.013	0.013
	Impedance	Z'_{20}	mΩ/m	0.030	0.030	0.021	0.022	0.019	0.019
Impedance per unit length of the busbars with 50 Hz and	Resistance	R'_{140}	mΩ/m	0.033	0.033	0.023	0.023	0.019	0.020
	Reactance	X'_{140}	mΩ/m	0.019	0.019	0.015	0.015	0.013	0.013

System-dependent data				LDA641	LDA642	LDA741	LDA742	LDA841	LDA842	
				PEN=½L	PEN=L	PEN=½L	PEN=L	PEN=½L	PEN=L	
busbar temperature 140 °C	Impedance	Z' ₁₄₀	mΩ/m	0.038	0.038	0.027	0.028	0.023	0.024	
	Impedance of the fault loop phase - PE(N) at busbar temperature 20 °C	Resistance	R' _{b2} _{0phP} E(N)	mΩ/m	0.059	0.046	0.044	0.034	0.038	0.029
		Reactance	X' _{b-} _{phPE(N)}	mΩ/m	0.044	0.043	0.033	0.034	0.029	0.031
	Impedance	Z' _{b20} _{phPE(N)}	mΩ/m	0.073	0.063	0.055	0.048	0.048	0.042	
Zero-sequence impedance										
Zero-sequence im- pedance phases - PE(N) with 50 Hz and busbar temperature 20 °C	Resistance	R' ₍₀₎ _{b20ph} PE(N)	mΩ/m	0.168	0.105	0.123	0.075	0.108	0.063	
	Reactance	X' ₍₀₎ _{bphP} E(N)	mΩ/m	0.153	0.141	0.114	0.108	0.099	0.096	
	Impedance	Z' ₍₀₎ _{b20ph} PE(N)	mΩ/m	0.227	0.176	0.168	0.131	0.147	0.115	
Short-circuit withstand strength										
Rated short-time withstand current	r.m.s. value t = 0.1 s	<i>I_{cw}</i>	kA	130	130	130	130	130	130	
	r.m.s. value t = 1 s	<i>I_{cw}</i>	kA	116	116	116	116	116	116	
Rated impulse withstand current	Peak value	<i>I_{pk}</i>	kA	286	286	286	286	286	286	
Conductor material				Aluminium						
No. of busbars				7	8	7	8	7	8	
Conductor cross- section	L1, L2, L3	A	mm ²	1412	1412	2044	2044	2464	2464	
	PEN	A	mm ²	706	1412	1022	2044	1232	2464	
Fire load										
Trunking unit without tap-off point			kWh/m	10.87	11.99	10.87	11.99	10.87	11.99	
per tap-off point			kWh	12.04	12.96	12.04	12.96	12.04	12.96	
Max. fixing distances										
at normal mechanical load			m	5	5	5	5	5	5	

1) Dependent on degree of protection and type of routing

2) Incl. height offsets ≤1.3 m

7.3 Trunking units LDA.6 (5-pole, aluminium)

System-dependent data				LDA162	LDA262	LDA362	LDA461	LDA462	LDA561	LDA562
				N=L	N=L	N=L	N=½L	N=L	N=½L	N=L
Rated current $I_e^{(1)}$										
Horizontal edge-wise ²⁾	IP34	I_e	A	1100	1250	1600	2000	2000	2500	2500
	IP54	I_e	A	900	1000	1200	1500	1500	1800	1800
Vertical	IP34	I_e	A	950	1100	1250	1700	1700	2100	2100
	IP54	I_e	A	900	1000	1200	1500	1500	1800	1800
Horizontal flat	IP31/IP54	I_e	A	700	750	1000	1200	1200	1700	1700
Impedance per unit length										
Impedance per unit length of the busbars with 50 Hz and busbar temperature 20 °C	Re-sistance	R'_{20}	mΩ/m	0.060	0.046	0.045	0.030	0.030	0.026	0.026
	Reac-tance	X'_{20}	mΩ/m	0.045	0.037	0.037	0.024	0.024	0.022	0.021
	Imped-ance	Z'_{20}	mΩ/m	0.075	0.059	0.059	0.038	0.038	0.034	0.034
Impedance per unit length of the busbars with 50 Hz and busbar temperature 140 °C	Re-sistance	R'_{140}	mΩ/m	0.089	0.068	0.067	0.044	0.044	0.038	0.038
	Reac-tance	X'_{140}	mΩ/m	0.045	0.037	0.037	0.024	0.024	0.022	0.021
	Imped-ance	Z'_{140}	mΩ/m	0.100	0.077	0.077	0.050	0.050	0.044	0.044
Impedance of the fault loop phase - PE(N) at busbar temperature 20 °C	Re-sistance	$R'_{b20phPE(N)}$	mΩ/m	0.111	0.089	0.090	0.080	0.080	0.073	0.073
	Reac-tance	$X'_{bphPE(N)}$	mΩ/m	0.126	0.110	0.110	0.079	0.078	0.073	0.072
	Imped-ance	$Z'_{b20phPE(N)}$	mΩ/m	0.168	0.142	0.142	0.112	0.112	0.103	0.102
Impedance of the fault loop phase - N at busbar temperature 20 °C	Re-sistance	R'_{b20phN}	mΩ/m	0.136	0.105	0.105	0.097	0.067	0.085	0.055
	Reac-tance	X'_{bphN}	mΩ/m	0.107	0.088	0.088	0.065	0.064	0.058	0.051
	Imped-ance	Z'_{b20phN}	mΩ/m	0.173	0.137	0.137	0.116	0.092	0.103	0.075
Zero-sequence impedance										
Zero-sequence impedance phases - PE(N) with 50 Hz and busbar temperature 20 °C	Re-sistance	$R'_{(0)b20phPE(N)}$	mΩ/m	0.237	0.195	0.195	0.246	0.246	0.225	0.222
	Reac-tance	$X'_{(0)bphPE(N)}$	mΩ/m	0.468	0.405	0.299	0.303	0.306	0.273	0.279
	Imped-ance	$Z'_{(0)b20phPE(N)}$	mΩ/m	0.525	0.449	0.444	0.390	0.393	0.354	0.357
Zero-sequence impedance phases - N with 50 Hz and	Re-sistance	$R'_{(0)b20phN}$	mΩ/m	0.282	0.219	0.219	0.234	0.144	0.201	0.126
	Reac-tance	$X'_{(0)bphN}$	mΩ/m	0.237	0.192	0.192	0.159	0.150	0.141	0.135

7.3 Trunking units LDA.6 (5-pole, aluminium)

System-dependent data				LDA162	LDA262	LDA362	LDA461	LDA462	LDA561	LDA562
				N=L	N=L	N=L	N=½L	N=L	N=½L	N=L
busbar temperature 20 °C	Impedance	$Z'_{(0)b20phN}$	mΩ/m	0.368	0.291	0.291	0.283	0.208	0.246	0.185
Short-circuit withstand strength										
Rated short-time withstand current	r.m.s. value t = 0.1 s	I_{cw}	kA	55	70	80	110	110	125	125
	r.m.s. value t = 1 s	I_{cw}	kA	40	55	58	80	80	110	110
Rated impulse withstand current	Peak value	I_{pk}	kA	121	154	176	242	242	275	275
Rated short-time withstand current of the 5th conductor	r.m.s. value t = 0.1 s	I_{cw}	kA	33	42	48	66	66	75	75
	r.m.s. value t = 1 s	I_{cw}	kA	24	33	35	48	48	66	66
Conductor material				Aluminium						
No. of busbars				5	5	5	8	9	8	9
Conductor cross-section	L1, L2, L3	A	mm ²	530	706	706	1060	1060	1232	1232
	N	A	mm ²	530	706	706	530	1060	616	1232
	PE	A	mm ²	530	706	706	530	530	706	706
Fire load										
Trunking unit without tap-off point			kWh/m	7.28	7.29	7.29	10.87	11.99	10.87	11.99
per tap-off point			kWh	8.32	8.32	8.32	12.04	12.96	12.04	12.96
Max. fixing distances										
at normal mechanical load			m	6	6	6	5	5	5	5
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System-dependent data				LDA661	LDA662	LDA761	LDA762	LDA86 1	LDA86 2	
				N=½L	N=L	N=½L	N=L	N=½L	N=L	
Rated current $I_e^{(1)}$										
Horizontal edgewise ²⁾	IP34	I_e	A	3000	3000	3700	3700	4000	4000	
	IP54	I_e	A	2000	2000	2400	2400	2700	2700	
Vertical	IP34	I_e	A	2300	2300	2800	2800	3400	3400	
	IP54	I_e	A	2000	2000	2400	2400	2700	2700	

Technical data

7.3 Trunking units LDA.6 (5-pole, aluminium)

System-dependent data				LDA661	LDA662	LDA761	LDA762	LDA86 1	LDA86 2
				N=½L	N=L	N=½L	N=L	N=½L	N=L
Horizontal flat	IP31/IP54	l_e	A	1800	1800	2200	2200	2350	2350
Impedance per unit length									
Impedance per unit length of the busbars with 50 Hz and busbar temperature 20 °C	Resistance	R'_{20}	mΩ/m	0.023	0.023	0.018	0.018	0.017	0.017
	Reactance	X'_{20}	mΩ/m	0.020	0.019	0.015	0.015	0.014	0.014
	Impedance	Z'_{20}	mΩ/m	0.030	0.030	0.023	0.023	0.022	0.022
Impedance per unit length of the busbars with 50 Hz and busbar temperature 140 °C	Resistance	R'_{140}	mΩ/m	0.034	0.034	0.027	0.027	0.025	0.025
	Reactance	X'_{140}	mΩ/m	0.020	0.019	0.015	0.015	0.014	0.014
	Impedance	Z'_{140}	mΩ/m	0.039	0.039	0.030	0.030	0.029	0.029
Impedance of the fault loop phase - PE(N) at busbar temperature 20 °C	Resistance	$R'_{b20phPE(N)}$	mΩ/m	0.065	0.065	0.050	0.050	0.045	0.045
	Reactance	$X'_{b-phPE(N)}$	mΩ/m	0.067	0.066	0.053	0.052	0.047	0.047
	Impedance	$Z'_{b20phPE(N)}$	mΩ/m	0.093	0.093	0.073	0.072	0.065	0.065
Impedance of the fault loop phase - N at busbar temperature 20 °C	Resistance	R'_{b20phN}	mΩ/m	0.074	0.052	0.052	0.037	0.044	0.031
	Reactance	X'_{bphN}	mΩ/m	0.052	0.051	0.036	0.039	0.034	0.035
	Impedance	Z'_{b20phN}	mΩ/m	0.090	0.073	0.063	0.054	0.056	0.047
Zero-sequence impedance									
Zero-sequence impedance phases - PE(N) with 50 Hz and busbar temperature 20 °C	Resistance	$R'_{(0)b20phPE(N)}$	mΩ/m	0.201	0.198	0.153	0.150	0.135	0.135
	Reactance	$X'_{(0)bphPE(N)}$	mΩ/m	0.249	0.255	0.195	0.195	0.174	0.174
	Impedance	$Z'_{(0)b20phPE(N)}$	mΩ/m	0.320	0.323	0.248	0.246	0.220	0.220
Zero-sequence impedance phases - N with 50 Hz and busbar temperature 20 °C	Resistance	$R'_{(0)b20phN}$	mΩ/m	0.177	0.111	0.126	0.078	0.105	0.069
	Reactance	$X'_{(0)bphN}$	mΩ/m	0.126	0.123	0.190	0.093	0.078	0.081
	Impedance	$Z'_{(0)b20phN}$	mΩ/m	0.217	0.166	0.155	0.121	0.131	0.106
Short-circuit withstand strength									
Rated short-time withstand current	r.m.s. value t = 0.1 s	I_{cw}	kA	130	130	130	130	130	130
	r.m.s. value t = 1 s	I_{cw}	kA	116	116	116	116	116	116
Rated impulse withstand current	Peak value	I_{pk}	kA	286	286	286	286	286	286

7.3 Trunking units LDA.6 (5-pole, aluminium)

System-dependent data				LDA661	LDA662	LDA761	LDA762	LDA86	LDA86
				1		2			
				N=½L	N=L	N=½L	N=L	N=½L	N=L
Rated short-time withstand current of the 5th conductor	r.m.s. value t = 0.1 s	I_{cw}	kA	78	78	78	78	78	78
	r.m.s. value t = 1 s	I_{cw}	kA	70	70	70	70	70	70
Conductor material				Aluminium					
No. of busbars				8	9	8	9	8	9
Conductor cross-section	L1, L2, L3	A	mm ²	1412	1412	2044	2044	2464	2464
	N	A	mm ²	706	1412	1022	2044	1232	2464
	PE	A	mm ²	706	706	1022	1022	1232	1232
Fire load									
Trunking unit without tap-off point			kWh/m	10.87	11.99	10.87	11.99	10.87	11.99
per tap-off point			kWh	12.04	12.96	12.04	12.96	12.04	12.96
Max. fixing distances									
at normal mechanical load			m	5	5	5	5	5	5

1) Dependent on degree of protection and type of routing

2) Incl. height offsets ≤1.3 m