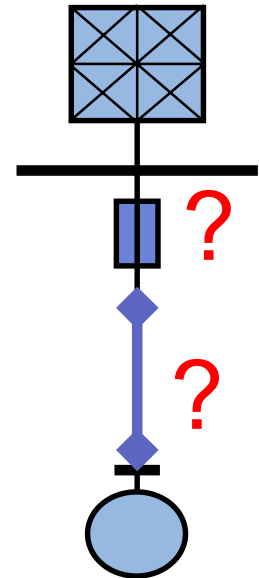


Characteristics

- Selection of cable (type, cross section) and protection device for an assumed passive or motor load and a given infeed.
- Cable length is given by the user.
- Cable type is taken from a predefined cable library (pool) within NEPLAN.
- Automatic selection of protection device rating and setting. Device is taken from NEPLAN protection library.
- Sizing of one cable or any number of cables together (distributed radial network)
- Maximum length of selected cable type and section for which the criteria is still fulfilled
- Inspection of already installed cables.



Neplan Library Application - [Line-NYY 4L L]

Type	Unit of	R(1)	X(1)	C(1)	R(0)	X(0)	Irmin	
	Length	Ohm/...	Ohm/...	uF/...	Ohm/...	Ohm/...	A	
1	NYY 4x 1,5	km	12,1	0,115	0,3915	48,4	0,459	19,5
2	NYY 4x 2,5	km	7,28	0,11	0	29,12	0,441	25
3	NYY 4x 4	km	4,56	0,107	0	18,24	0,426	34
4	NYY 4x 6	km	3,03	0,1	0	12,12	0,403	43
5	NYY 4x 10	km	1,81	0,094	0	7,24	0,378	59
6	NYY 4x 16	km	1,141	0,09	0	4,564	0,358	79
7	NYY 4x 25	km	0,724	0,086	0	2,896	0,355	106
8	NYY 4x 35	km	0,526	0,083	0	2,104	0,314	129
9	NYY 4x 50	km	0,389	0,083	0	1,556	0,312	157

Laying and reduction factor

- Laying: in ground
- Temper. of vicinity: 25 °C
- Heat resistance: 1,5 K*m/W
- Laying: multi core, 7cm distance
- Laying: in pipe
- Number cable trays: 3
- Kind of cable: XLPE cable
- Max. operating temp.: 90 °C
- Degree of loading: 0,85
- Number circuits: 4
- Single factors: 0,850 0,630 0,850
- Total reduction factor: 0,455

Cable type - general data

- Type Name: VPE 10kV EM
- Description: Mehrleiter in Erde / XLPE multi core in eart
- Conductor material: Cu
- Insulation material: VPE - vernetztes Polyethylen
- Ur /kV: 10
- Laying: in ground
- Reference temperature: 20 °C
- Max. operating temp.: 90 °C
- Max. s/c temperature: 250 °C
- Sthr / A/mm²: 141

Criteria of dimensioning

- Service current of consumer, influence current rating of cable
- Protection of cable against overload
- Tolerable voltage drop and voltage limits
- Protection against hazardous voltage (protect persons), influence switch off in tolerable time
- Protection of cable against short-term overheating

Results

Elem.name	distribution	Destination
L- 94	46EC03	46HJ03-C
L- 95	46EC03	46HJ04-C
L- 96	46EC03	46HH04-D
L- 97	46EC03	46HK01-C
L- 98	46EC03	46HH04-C
L- 99	46EC03	46HH01-C
L-100	46CA-B	46XR14N003-A
L-101	46CA-B	46XR14N003-H
L-102	46EC03	46XR13N003-C
L-103	46CA-B	46XR13N003-A
L-104	46CA-A	46XR12N003-H
L-105	46EC03	46XR12N003-C
L-106	46CA-A	46XR12N003-A
L-107	46CA-A	46XR11N003-H
L-108	46EC03	46XR11N003-C
L-109	46CA-A	46XR11N003-A
L-110	46EC03	46XR14N003-C
R-01	46CA-A	46UC40D001
R-02	46CA-B	46UC40D001
R-05	46CA-B	46KE04

Elem.name: L-100
 Description:
 Starting node: 46CA-B
 End node: 46XR14N003-A
 I service /A: 0,509427 | I start /A: 0,509427
 Length /m: 34
 Reduction Factor: 0,504
 Tol.volt.drop /%: 3
 Tol.volt.drop M5 /%: 12
 Overload protection: I1 /A: 10
 S/C protection: I2 /A: 100
 tmax /s: 5
 Protective Device: B-Automaten
 Automater: Automater B10
 2nd device (s/c): NH-Sicherungen
 NH 100 A

Result of Cable Sizing

Overload protection	Iz /A	15,6	+	Cable	1 x NZXY 4x1,5
Load flow (normal operation)	line voltage drop du /%	0,20	+	Total reduction factor	0,50
	minimum voltage u /%	99,8	+	Limited length /m	116
Voltage drop motor start	line voltage drop du /%	0,00	-	Device	Automat B10
	minimum voltage u /%	0,0	-	2nd device (s/c)	NH 100 A
	trip time t /s	0,000	-	I1 /A	10,0
Protection by disconnection	tmax1 /s	0,016	+	I2 /A	100,0
Thermal s/c strength	tmax2 /s	0,775	+	OK	

The diagram illustrates a power distribution system starting from a 630 kVA transformer. It shows several branches with different cable types and lengths, leading to various loads and protective devices. Key components include:

- HVT 0.4 kV, u=102.03%, Ik(L1)=21.764 kA
- Load 1: 0.4 kV, u=99.68%, Ik(L1)=5.482 kA
- Load 2: 0.4 kV, u=99.88%, Ik(L1)=8.691 kA
- Automat B16
- SPAJ 140 C (JDMT) toff=0.24 s

Inspection of Cable Sizing

Overload protection	Iz /A	155,4	+
Load flow (normal operation)	line voltage drop du /%	2,35	+
	minimum voltage u /%	99,7	+
Voltage drop motor start	line voltage drop du /%	1,71	+
	minimum voltage u /%	98,0	+
	trip time t /s	> 1000	+
Protection by disconnection	tmax1 /s	0,027	+
Thermal s/c strength	tmax2 /s	0,056	+

OK