

e-DPP 4.0.2

New Features & Enhancements

e-DPP 4.0.2 - Major Revisions

Variety of Calculation Formulas for Power Cable Sizing

- ✓ 3 options for voltage drop calculation formulas at motor start
- ✓ 2 options for voltage drop calculation formulas at normal operation
- ✓ Added a calculation formula for 1-phase 3-wire loads
- ✓ Applicable to batch cable sizing, sizing for individual loads and cable sizing chart

Unicode-enabled Editors

- ✓ All editor screens are Unicode-enabled so that any double-byte characters can be used in the editors
- ✓ Double-byte characters can be handled at import of an external file

User-Defined Template (Schedule Sheet & Datasheet)

- ✓ MS Office 2007 / 2010 format files are supported
- ✓ Editor dialogs can be maximized and re-sized

MS Excel Reports

- ✓ Reports can be exported to any Excel sheet user designates

Others

- ✓ Lengths of LCS, Space Heater and CCR cable are synchronized with power cable at data filling operation
- ✓ Calculate "Line-to-Neutral" voltage for single-phase 3-wire system
- ✓ SPEL Adaptor supports the latest version of SPEL 2009

Variety of Calculation Formulas for Power Cable Sizing



Select Calculation Formulas

Normal Running

Formula 1

$$\varepsilon = \frac{Ku \times I \times (rl \cos \theta + xl \sin \theta)}{10000 \times V_s}$$

Formula 2

$$\varepsilon = \frac{Ku \times V_m \times I \times (rl \cos \theta + xl \sin \theta)}{10000 \times V_s^2}$$

where:

ε : Voltage drop (%)
 Ku : $=\sqrt{3}$ (3 phase)
 $=2$ (1 phase, 2 wire)
 $=1$ (1 phase, 3 wire)
 l : Actual cable length (m)
 V_s : System (bus) voltage (kV)
 V_m : Motor rated voltage (kV)
 I : Motor full load current (A)
 r : Cable resistance (ohm/km)
 x : Cable Reactance (ohm/km)
 $\cos \theta$: Motor power factor at full load
 $\sin \theta$: Motor reactance factor at full load

Motor Start

Formula 1

$$\varepsilon_s = \frac{Ku \times I_s \times (rl \cos \theta_s + xl \sin \theta_s)}{10000 \times V_s}$$

Formula 2

$$\varepsilon_s = \frac{Ku \times V_m \times I_s \times (rl \cos \theta_s + xl \sin \theta_s)}{10000 \times V_s^2}$$

Formula 3

$$\varepsilon_s = \left\{ 1 - \frac{Z}{\sqrt{\left(R + \frac{rl}{1000}\right)^2 + \left(X + \frac{xl}{1000}\right)^2}} \right\} \times 100$$

where:

ε_s : voltage drop (%) at starting
 I_s : Motor starting current (A)
 Z : Motor impedance at starting (ohm)
 R : Motor resistance at starting (ohm)
 X : Motor reactance at starting (ohm)
 $\cos \theta_s$: Motor power factor at starting
 $\sin \theta_s$: Motor reactance factor at starting

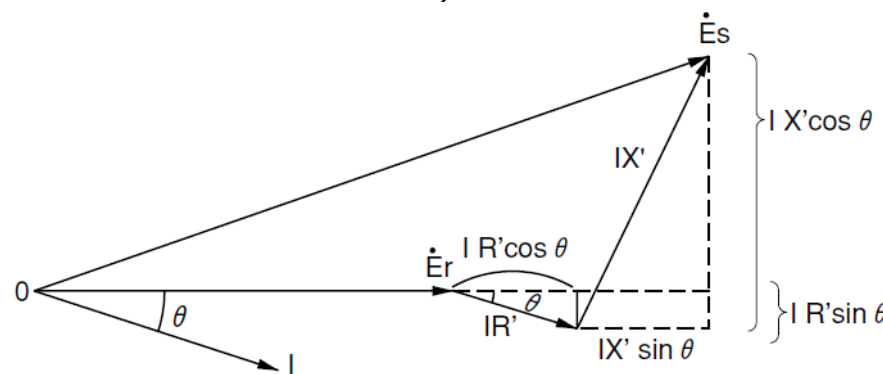
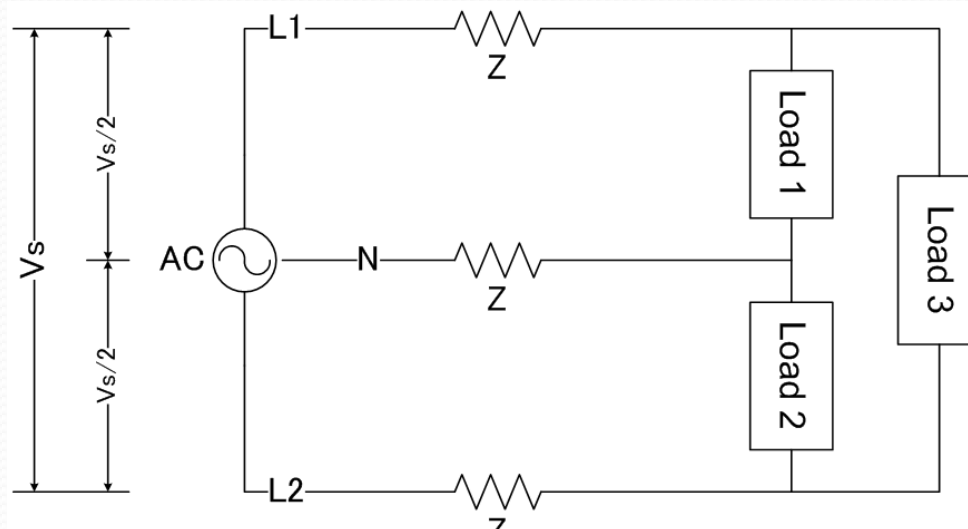
✓ User selectable calculation formulas

✓ Matching project requirements

✓ Motor model at start: Constant Z /Constant kVA

✓ Adjustment by ratio of bus and load rated voltages

Variety of Calculation Formulas for Power Cable Sizing



$$\varepsilon = \frac{KVA \times (rl \cos \theta + xl \sin \theta)}{5000 \times V_s^2}$$

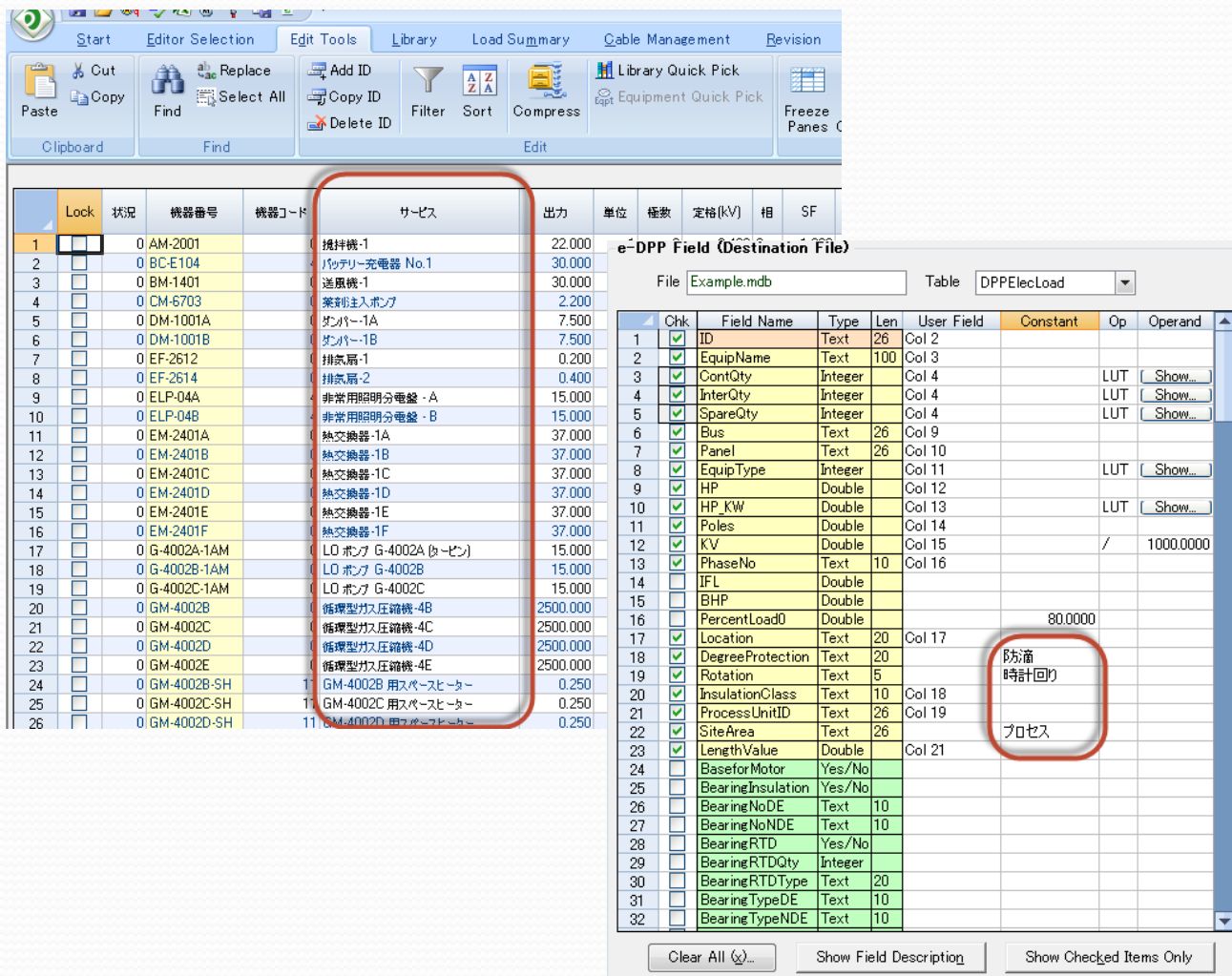
$$\varepsilon = \frac{KVA \times (rl \cos \theta + xl \sin \theta)}{2500 \times V_s^2}$$

✓ Calculate for single-phase 3-wire loads

✓ Applicable to small loads such as a lighting distribution panel

Note: When determining actual cable sizes used for a project, it is required to summate capacity of all loads connected to the same circuit and use line-to-line voltage.

Unicode-enabled Editors



The screenshot displays the e-DPP software interface. The main window shows a data table with columns for Lock, Status, Equipment No., Equipment Code, Service, Output, Unit, Quantity, Rating (KV), Phase, and SF. A red box highlights the 'サービス' (Service) column, which contains Japanese text. An 'e-DPP Field (Destination File)' dialog is open, showing a list of fields with their names, types, lengths, and user field assignments. A red box in the dialog highlights the '防滴時計回り' (Drip-proof clockwise rotation) and 'プロセス' (Process) fields, which contain double-byte characters.

Lock	状況	機器番号	機器コード	サービス	出力	単位	種数	定格(KV)	相	SF
1	<input type="checkbox"/>	0 AM-2001		機持機-1	22.000					
2	<input type="checkbox"/>	0 BC-E104		バッテリー充電器 No.1	30.000					
3	<input type="checkbox"/>	0 BM-1401		送風機-1	30.000					
4	<input type="checkbox"/>	0 CM-6703		薬液注入ポンプ	2.200					
5	<input type="checkbox"/>	0 DM-1001A		ファン-1A	7.500					
6	<input type="checkbox"/>	0 DM-1001B		ファン-1B	7.500					
7	<input type="checkbox"/>	0 EF-2612		排気扇-1	0.200					
8	<input type="checkbox"/>	0 EF-2614		排気扇-2	0.400					
9	<input type="checkbox"/>	0 ELP-04A		非常用照明分電盤 - A	15.000					
10	<input type="checkbox"/>	0 ELP-04B		非常用照明分電盤 - B	15.000					
11	<input type="checkbox"/>	0 EM-2401A		熱交換器-1A	37.000					
12	<input type="checkbox"/>	0 EM-2401B		熱交換器-1B	37.000					
13	<input type="checkbox"/>	0 EM-2401C		熱交換器-1C	37.000					
14	<input type="checkbox"/>	0 EM-2401D		熱交換器-1D	37.000					
15	<input type="checkbox"/>	0 EM-2401E		熱交換器-1E	37.000					
16	<input type="checkbox"/>	0 EM-2401F		熱交換器-1F	37.000					
17	<input type="checkbox"/>	0 G-4002A-1AM		LO ポンプ G-4002A (タービン)	15.000					
18	<input type="checkbox"/>	0 G-4002B-1AM		LO ポンプ G-4002B	15.000					
19	<input type="checkbox"/>	0 G-4002C-1AM		LO ポンプ G-4002C	15.000					
20	<input type="checkbox"/>	0 GM-4002B		循環型ガス圧縮機-4B	2500.000					
21	<input type="checkbox"/>	0 GM-4002C		循環型ガス圧縮機-4C	2500.000					
22	<input type="checkbox"/>	0 GM-4002D		循環型ガス圧縮機-4D	2500.000					
23	<input type="checkbox"/>	0 GM-4002E		循環型ガス圧縮機-4E	2500.000					
24	<input type="checkbox"/>	0 GM-4002B-SH	1	GM-4002B 用スペースヒーター	0.250					
25	<input type="checkbox"/>	0 GM-4002C-SH	1	GM-4002C 用スペースヒーター	0.250					
26	<input type="checkbox"/>	0 GM-4002D-SH	1	GM-4002D 用スペースヒーター	0.250					

Chk	Field Name	Type	Len	User Field	Constant	Op	Operand
<input checked="" type="checkbox"/>	ID	Text	26	Col 2			
<input checked="" type="checkbox"/>	EquipName	Text	100	Col 3			
<input checked="" type="checkbox"/>	ContQty	Integer		Col 4		LUT	Show...
<input checked="" type="checkbox"/>	InterQty	Integer		Col 4		LUT	Show...
<input checked="" type="checkbox"/>	SpareQty	Integer		Col 4		LUT	Show...
<input checked="" type="checkbox"/>	Bus	Text	26	Col 9			
<input checked="" type="checkbox"/>	Panel	Text	26	Col 10			
<input checked="" type="checkbox"/>	EquipType	Integer		Col 11		LUT	Show...
<input checked="" type="checkbox"/>	HP	Double		Col 12			
<input checked="" type="checkbox"/>	HP_KW	Double		Col 13		LUT	Show...
<input checked="" type="checkbox"/>	Poles	Double		Col 14			
<input checked="" type="checkbox"/>	KV	Double		Col 15	/		1000.0000
<input checked="" type="checkbox"/>	PhaseNo	Text	10	Col 16			
<input type="checkbox"/>	IFL	Double					
<input type="checkbox"/>	BHP	Double					
<input type="checkbox"/>	PercentLoad0	Double					80.0000
<input checked="" type="checkbox"/>	Location	Text	20	Col 17			
<input checked="" type="checkbox"/>	DegreeProtection	Text	20				防滴時計回り
<input checked="" type="checkbox"/>	Rotation	Text	5				プロセス
<input checked="" type="checkbox"/>	InsulationClass	Text	10	Col 18			
<input checked="" type="checkbox"/>	ProcessUnitID	Text	26	Col 19			
<input checked="" type="checkbox"/>	SiteArea	Text	26				
<input checked="" type="checkbox"/>	LengthValue	Double		Col 21			
<input type="checkbox"/>	Basefor Motor	Yes/No					
<input type="checkbox"/>	BearingInsulation	Yes/No					
<input type="checkbox"/>	BearingNoDE	Text	10				
<input type="checkbox"/>	BearingNoNDE	Text	10				
<input type="checkbox"/>	BearingRTD	Yes/No					
<input type="checkbox"/>	BearingRTDQty	Integer					
<input type="checkbox"/>	BearingRTDType	Text	20				
<input type="checkbox"/>	BearingTypeDE	Text	10				
<input type="checkbox"/>	BearingTypeNDE	Text	10				

✓ All editor screens are Unicode-enabled so that any double-byte characters can be used in the editors

✓ Double-byte characters can be handled at import of an external file

User-Defined Template



Category and Template Selection

Category: All Elec. Loads Template Name: DPPCableSizingData

Template Title: Input Data for Cable Sizing

MS Excel File
File Name: C:\Program Files\Microsoft Excel\DPFCableSizingData.xls

Data Offset
Max. Data Rows per Page: 25 Data Starting Column: 2 Data Starting Row: 8

Initial Filter: Cell Data

Source Table and Field

Header Table	Data Table
REVData	DPPCableLoad
ApprovedBy1	BearingMotor
ApprovedBy2	BearingInsulation
ApprovedBy3	BearingNDE
ApprovedBy4	BearingRTD
ApprovedBy5	BearingRTDType
CheckedBy1	BearingRTDType
CheckedBy2	BearingTypeNDE
CheckedBy3	BearingTypeNDE
CheckedBy4	BearingTypeNDE
CheckedBy5	BearingTypeNDE
CurrentRevNo	BHP
DocumentNo	BHP
MadeBy1	BTDCableEntrySize
MadeBy2	Bus
MadeBy3	CableAmpDF
MadeBy4	CableLBD
MadeBy5	CableODValue

✓ MS Office 2007 / 2010 format files are supported

✓ Editor dialogs can be maximized and re-sized

Template Design - Data Sheet

Category and Template Selection

Category: Induction Motor Template Name: DPPMotorDataSheet

Template Title: Induction Motor Datasheet

MS Excel File
File Name: C:\Program Files\Microsoft Excel\DPFMotorDataSheet.xls

Data Offset
Max. Data Cols per Page: 1 Data Starting Column: Data Starting Row:

Initial Filter: EquipType IN(0) Cell Data

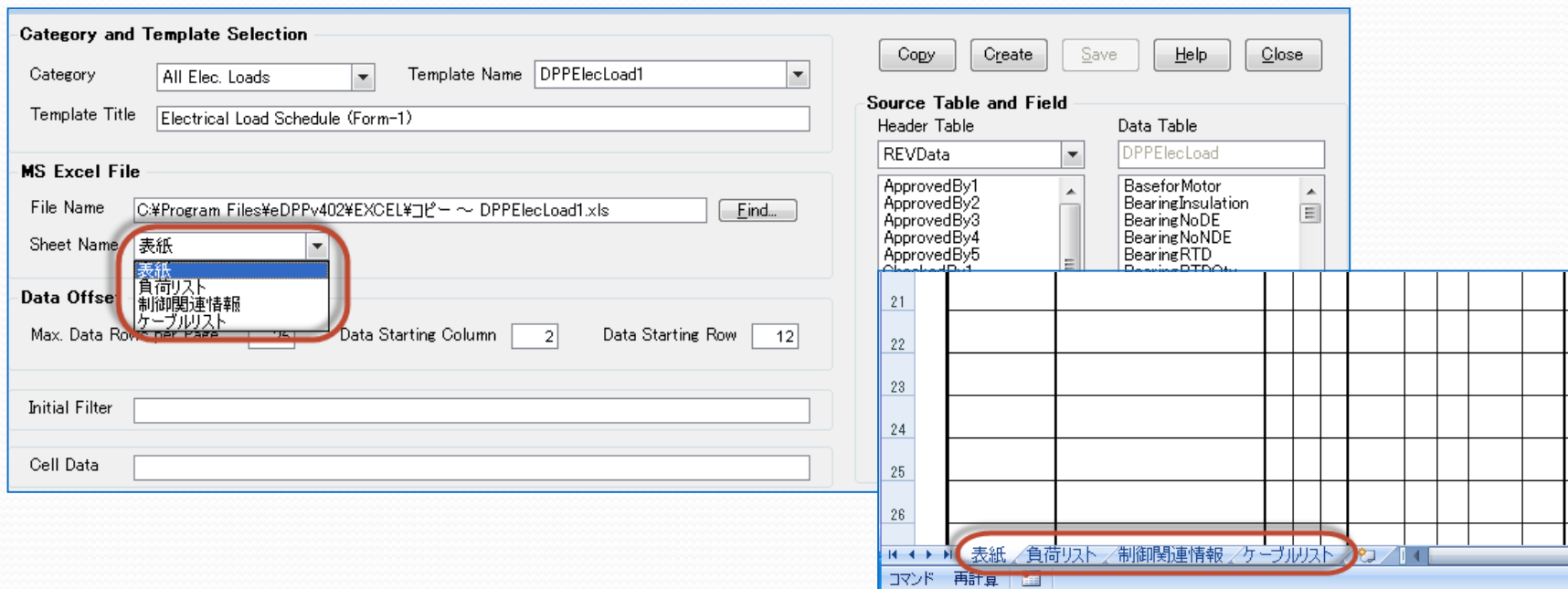
Source Table and Field

Header Table	Data Table
REVData	DPPCableLoad
ApprovedBy1	BearingMotor
ApprovedBy2	BearingInsulation
ApprovedBy3	BearingNDE
ApprovedBy4	BearingNDE
ApprovedBy5	BearingRTD
CheckedBy1	BearingRTDType
CheckedBy2	BearingRTDType
CheckedBy3	BearingTypeNDE
CheckedBy4	BearingTypeNDE
CheckedBy5	BearingTypeNDE
CurrentRevNo	BHP
DocumentNo	BHP
MadeBy1	BTDCableEntrySize
MadeBy2	Bus
MadeBy3	CableAmpDF
MadeBy4	CableLBD
MadeBy5	CableODValue

INDUCTION MOTOR DATA SHEET

Project Code	[DPPProjectRec,Project]	Job. No.	[DPPProjectRec,JobNo]	PO No.
Item No.	[DPPCableLoad,ItemNo]	MOTOR MANUFACTURER'S DATA		
Service	[DPPCableLoad,EquipName]	MFR Name		
No. Required	Continuous	[DPPCableLoad,ItemNo]	[DPPCableLoad,Power]	[DPPCableLoad,FrameNo]
GENERAL				Weight
Plant Name	[DPPProjectRec,PlantName]			MECHANICAL DATA & REQUIREMENTS
Applicable Standard	[DPPProjectRec,MotorStandard]			Type of Load
Technical Specification				BHP
MOTOR RATING				Load Torque at Starting
Output	[DPPCableLoad,HP_KW]	Load Torque at Full Speed		
Sync. Speed	rpm	GD2 of Load		
Poles	[DPPCableLoad,Poles]	Bearing (DE)		
Voltage	[DPPCableLoad,KV]	Bearing (NDE)		
Phase	[DPPCableLoad,PhaseNo]	Lubricant		

MS Excel Reports



Category and Template Selection

Category: All Elec. Loads Template Name: DPPElecLoad1

Template Title: Electrical Load Schedule (Form-1)

MS Excel File

File Name: C:\Program Files\eDPPv402\EXCEL\コピー ~ DPPElecLoad1.xls Find...

Sheet Name: 表紙

Data Offset

Max. Data Rows per Page: 25 Data Starting Column: 2 Data Starting Row: 12

Initial Filter:

Cell Data:

Source Table and Field

Header Table: REVData

Data Table: DPPElecLoad

ApprovedBy1
ApprovedBy2
ApprovedBy3
ApprovedBy4
ApprovedBy5
CheckedBy1

Basefor Motor
BearingInsulation
BearingNoDE
BearingNoNDE
BearingRTD
BearingRTDQty

21
22
23
24
25
26

表紙 / 負荷リスト / 制御関連情報 / ケーブルリスト

コマンド 再計算

✓ Reports can be exported to any Excel sheet user designates