



# e-DPP 2011 (ver.4.0)

## New Features

10 years passed since e-DPP beta version was released in 2001. e-DPP has been of service to many customers for these 10 years. We are pleased to provide you with the release of e-DPP version 4.0 (name e-DPP 2011) and introduce e-DPP 2011 new functions and reinforcement points. As for all main functions of e-DPP 2011, please refer to the separate brochure "e-DPP 2011 Product Overview". (May 2011 Eltechs)

### e-DPP 2011 Main Revision Points

#### Lumped Motor Calculation

- ✓ Specifying Motor Restart Group
- ✓ Auto Calculations of Lumped Motor Parameters
- ✓ Import Lumped Motors to ETAP

**New Feature!**

#### Cable Sizing

- ✓ Cable Sizing for Individual Loads
- ✓ Detail Settings for Ampacity Derating Factor
- ✓ Detail Settings for Application MF (Multiplying Factor) with Boundary Currents

**Enhanced!**

#### Import External Data

- ✓ Enhancement on Import Dialog (can be maximized)
- ✓ Import Yes/No and Date Type Data
- ✓ Auto Creation of Bus List and Switchgear List

**Enhanced!**

#### ETAP Interface through MS Excel

- ✓ Data Export to ETAP DataX – Fixed Format MS Excel

**New Feature!**

#### User Interface

- ✓ Introduced Office 2007 Style Ribbon Bar and Improved Operability
- ✓ Editor Screen – Freeze Panes, Popup Menu and Refresh Commands

**New Feature!**



# Lumped Motor Calculation

## Specifying Motor Restart Group

Specify motor restart groups which are basic units for lumped motors.

It is also possible to calculate lumped motors with other units than a motor restart group.

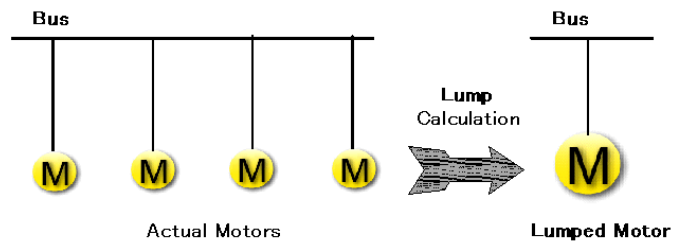
Group ID	Code	Priority	Restart Time Delay (s)	Max. Trip Delay (s)	Max. Auto Restart Time (s)	Max. Failure Rate (%)	Alarm Voltage (%)	Trip Voltage (%)	Restart Voltage (%)	Description
1	GROUP-1	G-1	0.0	1.0	0.2	5.0	80	65	90	Motor Restart Group No.1
2	GROUP-2	G-2	5.0	1.0	0.2	5.0	80	65	90	Motor Restart Group No.2
3	GROUP-3	G-3	15.0	1.0	0.2	5.0	80	65	90	Motor Restart Group No.3

Dialog for Specifying Motor Restart Groups

## Auto Calculations of Lumped Motor Parameters

Calculate “Lumped Motors” taking motor rated voltage, output, moment of inertia H and number of poles into consideration.

As several motors are modeled to single representative motor, a detail dynamic model required for ETAP Transient Stability calculation can be established. Also, the parameters required for ETAP Parameter Estimation calculation are produced at the same time.



Conceptual Diagram of Lumped Motors

## Import Lumped Motors to ETAP

Produced lumped motors can be imported to ETAP project database using ETAP interface.

As several small motors are grouped into a single lumped motor, ETAP system model can be simplified without sacrificing accuracy of ETAP calculations.

**Electrical Loads**  
 Induction Motors  
 Synchronous Motors  
 MOVs  
 Static Loads  
 Capacitors  
 Lumped Loads  
 Lumped Motors  
 VFD  
 UPS

**Branches**  
 Cables  
 2W Transformers  
 3W Transformers  
 Reactors  
 Impedances

**Protective Devices**  
 HV Circuit Breakers  
 LV Circuit Breakers  
 Fuses  
 Contactors  
 Overload Heaters

**Power Source**  
 Create Power Source  
 Synchronous Generator  
 Power Grid

**Generator Parameters**  
 ID: G-001  
 Operation Mode: Swing  
 Rated kV: 11  
 kVA: 20000  
 PF: 0.85  
 kW: 17000  
 X/R: 48  
 Xf: 00  
 12  
 Xd: 00  
 23  
 Xd: 00  
 110

ETAP Interface Dialog

## Lumped Motor Editor

When motor restart groups are not specified, auto groupings can be done with motor parameters such as number of poles, type of driven load and inertia constant.

If the inertia constant data are not available for each motor, typical data for each load type can be populated.

Select	Lumped Motor ID	Lumped Motor Sub-ID	Motor ID	Restart	Restart Group	Op. Mode	Equip. Code	Load Type	Machine Rating	Ph	kV	kVA	kW	Load AD	Load Xd	Load Xd'	Load Xd''
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-1	AM-001	<input checked="" type="checkbox"/>	GROUP-1	C	BM	Motor	31500	3	0.400	25000	8	800	1700	9000	14
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-11	SM-101	<input checked="" type="checkbox"/>	GROUP-1	C	BM	Blower	21400	3	0.400	30000	4	800	2400	3000	20
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-11	SM-102	<input checked="" type="checkbox"/>	GROUP-1	C	BM	Blower	10000	3	0.400	7000	4	800	600	900	4
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-1	MM-101A	<input checked="" type="checkbox"/>	GROUP-2	I	BM	Motor	11800	3	0.400	5000	8	800	44	3000	8
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-1	MSF	<input checked="" type="checkbox"/>	GROUP-1	C	MOV	Motor	11800	3	0.400	25000	2	800	1700	9000	14
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-1	PM-101 A	<input checked="" type="checkbox"/>	GROUP-1	C	BM	Pump	68100	3	0.400	25000	8	800	1700	9000	14
<input checked="" type="checkbox"/>	LM-MC-021A	LM-MC-021A-1	PM-101 C	<input checked="" type="checkbox"/>	GROUP-1	C	BM	Pump	68100	3	0.400	25000	8	800	1700	9000	14

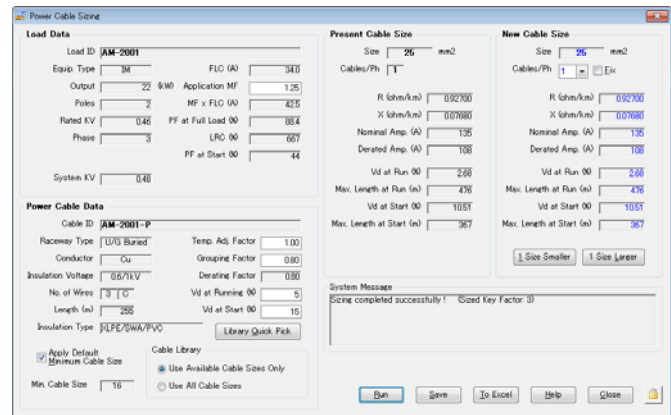
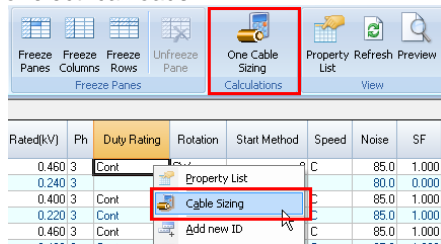
Lumped Motor Editor

## Cable Sizing

### Cable Sizing for Individual Loads

You can size a power cable for a particular load by changing an ampacity derating factor and application multiplying factor (MF).

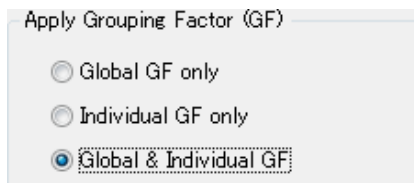
This function is directly called from the editor screen of electrical loads.



Dialog of Cable Sizing for Particular Load

### Detail Settings for Ampacity Grouping Factor

3 options are available, i.e. (1) globally applying a grouping factor specified for each voltage class, (2) applying a particular grouping factor to each load, or (3) both of them.



	Lock	Load ID	Eq. Type	Output	Nominal Ampacity	Temp Adj Factor	Temp Adj Ampacity	Group Factor	Derating Factor
1		AM-2001	IM	22.00	135.0	1.000	135.0	0.800	0.800
2		BM-1401	IM	30.00	250.0	1.000	250.0	0.800	0.800
3		DM-1001 A	IM	7.50	61.0	1.000	61.0	0.800	0.800
4		DM-1001 B	IM	7.50	61.0	1.000	61.0	0.800	0.800
5		EM-2401 A	IM	37.00	170.0	1.000	170.0	0.450	0.450
6		EM-2401 B	IM	37.00	170.0	1.000	170.0	0.450	0.450
7		EM-2401 C	IM	37.00	170.0	1.000	170.0	0.450	0.450
8		EM-2401 D	IM	37.00	170.0	1.000	170.0	0.450	0.450
9		EM-2401 E	IM	37.00	170.0	1.000	170.0	0.450	0.450
10		EM-2401 F	IM	37.00	170.0	1.000	170.0	0.450	0.450
11		G-4002A-1AM	IM	90.00	325.0	1.000	325.0	0.800	0.800

Screen of Cable Sizing Results

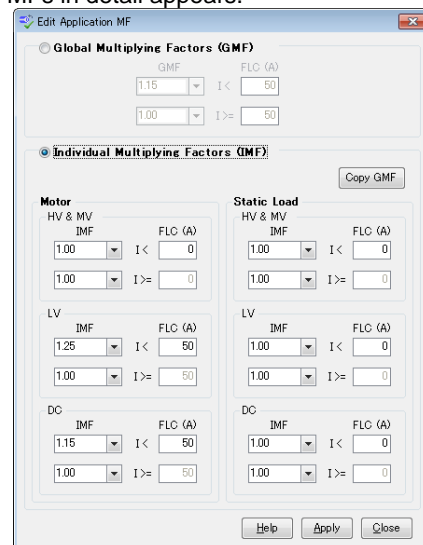
When particular grouping factors are applied, they are highlighted on the screen of cable sizing results and the output MS Excel sheet.

### Detail Settings for Application MF (Multiplying Factor) with Boundary Currents

You can specify 2 different MFs for loads of which rated FLC (A) is less than the specified boundary current, and equal or greater than that.

Application MF					
Motor		FLC	Static Load		FLC
Low	High		Low	High	
1.00	1.00	0	1.00	1.00	0
1.25	1.00	50	1.00	1.00	0
1.25	1.00	50	1.00	1.00	0
1.25	1.00	50	1.00	1.00	0
1.00	1.00	50	1.00	1.00	0

When "Application MF" button is clicked, the dialog to specify application MFs in detail appears.

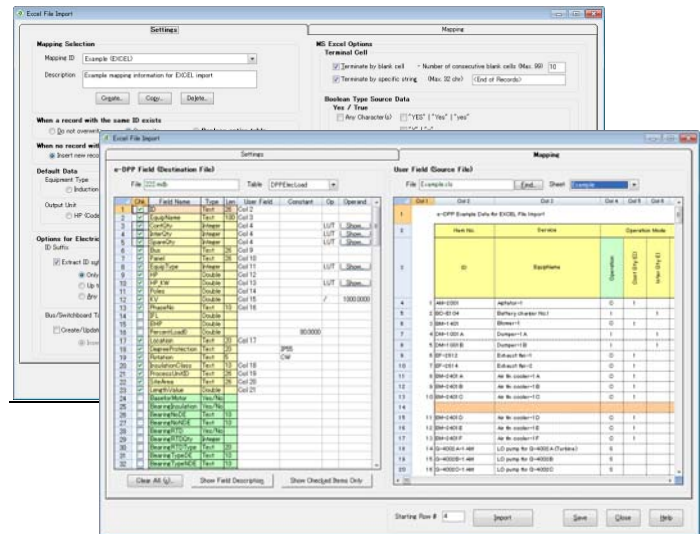


Dialog to Specify Application MFs with Boundary Currents

## Import External Data

### Enhancement on Import Dialog (can be maximized)

The dialog was divided into 2 tabs, i.e. (1) Setting import criteria and (2) Mapping fields. Operability was remarkably improved. The mapping tab where users drag & drop fields can be maximized.



Data Import Dialog

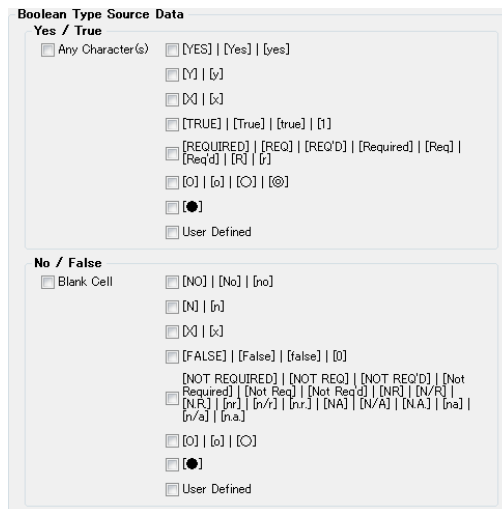
### Import Yes/No and Date Type Data

Now, it became possible to import Boolean type data such as Yes/No, True/False or Required/Not Required, and date type data.

When a file to be imported is MS Excel, various characters and symbols are usually used as Boolean data.

For example, "●" denotes "Yes" and "○" denotes "No". (Note: "●", "◎" and "○" are applicable to Japanese OS only.)

There are several patterns available to convert such user symbols to "Yes/No" correctly. It is also possible to add a user defined character or symbol.

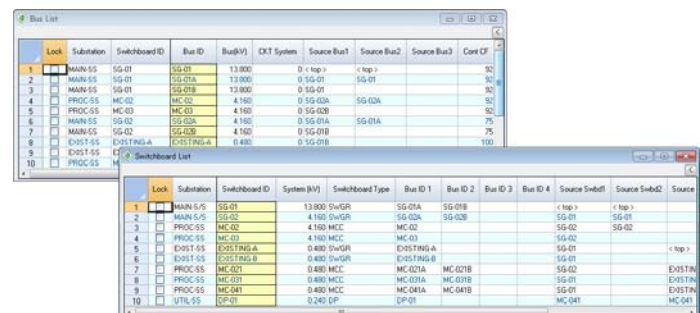


Boolean Data Setting Section

### Auto Creation of Bus List and Switchgear List

When a load list to be imported already includes data of connected buses or source switchgears, a bus list and switchgear list are automatically generated using such information.

That decreases burden to prepare data required for load summary calculation.



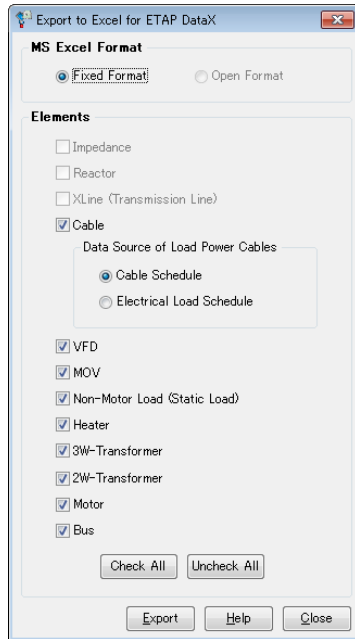
Bus List and Switchgear List Generated Automatically



# ETAP Interface through MS Excel

## Data Export to ETAP DataX – Fixed Format MS Excel

MS Excel sheet for the new feature DataX MS Excel implemented in ETAP is created automatically.



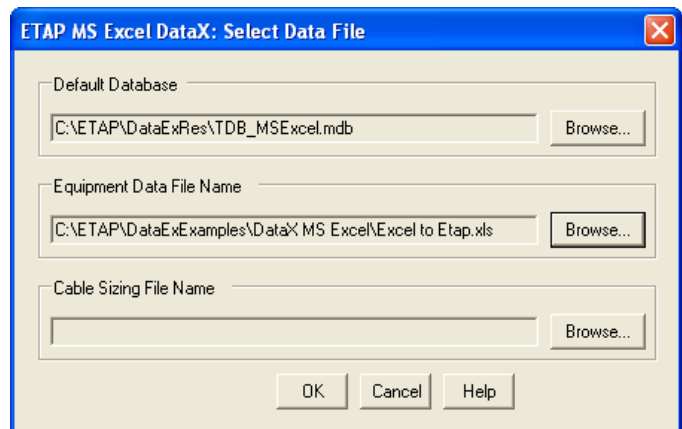
MS Excel Export Dialog for ETAP DataX

Equipment types that can be exported from e-DPP to ETAP via MS Excel are as listed below:

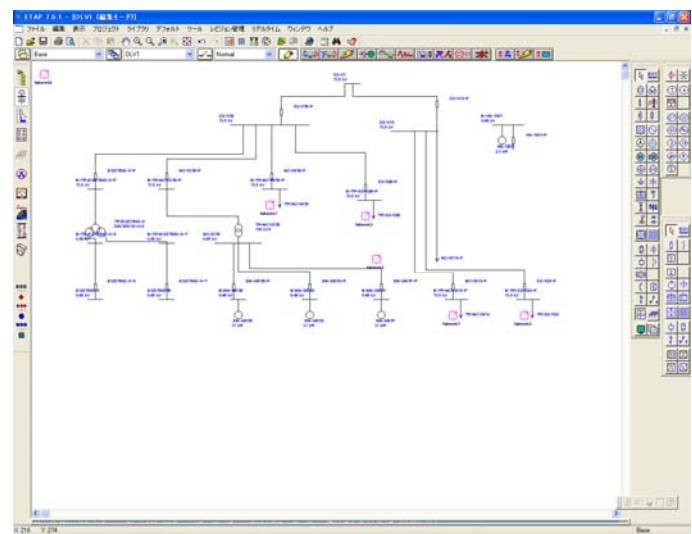
- (1) Cable
- (2) VFD
- (3) MOV
- (4) Static Load
- (5) Heater
- (6) 3-Winding Transformer
- (7) 2-Winding Transformer
- (8) Motor
- (9) Bus

As connection data among equipment are also exported at the same time, a single line diagram is automatically generated on ETAP.

Fix Format MS Excel Sheet Generated Automatically



ETAP DataX Dialog to Retrieve MS Excel Sheet



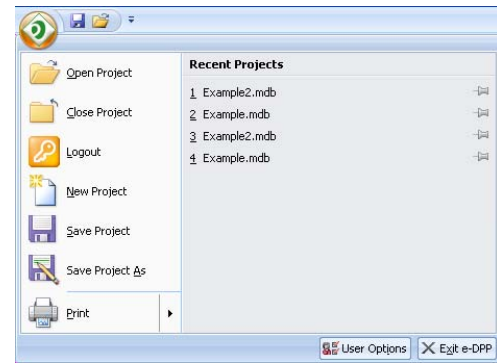
Single Line Diagram Generated on ETAP Automatically



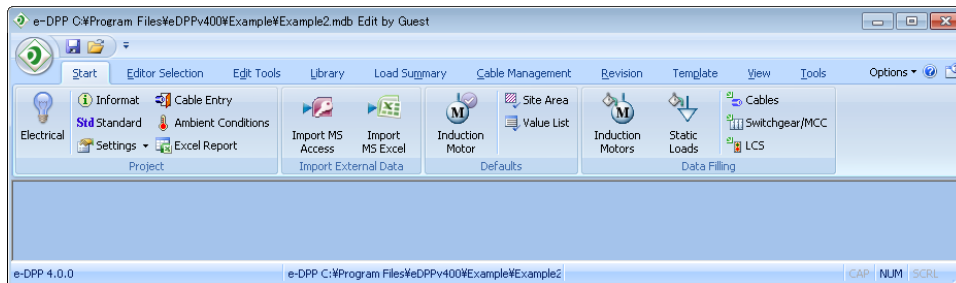
## ● Introduced Office 2007 Style Ribbon Bar

Office 2003 style menu bar and toolbar adopted by the previous e-DPP version 3.0 were abandoned and integrated to Office 2007 style Ribbon bar.

You can operate e-DPP in the same sense as Office 2007 style Ribbon bar with that a lot of e-DPP users are already familiar. It is also possible to add and customize a legacy toolbar by users.



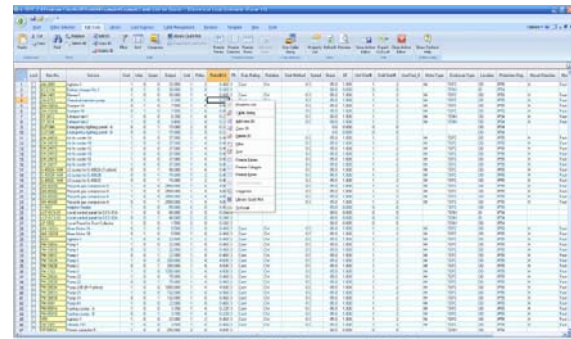
System Button and File Menu



New Office 2007 Style Ribbon Bar

## ● Editor Screen

New functions such as “Freeze Panes”, “Popup Menu” and Refreshing displayed data have been added. Closer operability to MS Excel has been realized.



Enhanced Editor Screen

Should you have any queries on the details of new features of e-DPP 4.0, please feel free to contact Eltechs Engineering and Consulting (email address [etap@eltechs.co.jp](mailto:etap@eltechs.co.jp)).