Wire Buddy Manual

IOpath Software
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Wire Buddy is a calculation reference tool for Electricians and Maintenance personnel.

Wire Buddy was created for the Maintenance Electrician. There are many occasions where an electrician needs to calculate wire size, conduit fill, over current protection, and grounding conductors. Wire Buddy will aid in these calculations. It has a quick reference for NEMA enclosures and Starter sizes. All calculations should be checked by a licensed Electrician. Calculations are not for service entrance, feeders, or splice taps. They should only be used for individual load devices. **Wire Buddy should not be used as the final authority for electrical calculations.**

Copy Protection

When you run full Wire Buddy for the first time, a popup window will appear displaying a unique ID number. You will be asked to email that number to IOpath. You will receive a unique Code Key number via email to activate Wire Buddy. If you buy a new computer, or reformat your hard drive and re-install Wire Buddy, you will need to repeat the process. You are allowed subsequent registrations once per year.

Minimum Requirements

IBM compatible PC with a Pentium processor. Super VGA graphics running in 800 x 600 pixels or greater. Color setting must be High Color (16 bit) or greater. A sound card is required to hear sound.

Installation (Win 95)

        In the instructions below, we are assuming that D is the drive letter of your CD drive. If D is not the drive letter for your CD drive, substitute the correct letter.

To install from the CD:

        If you are running Windows 95, you must first install Decomp95. This program is located on the CD in the Win95 folder. Insert the CD into your CD drive. Click on Start on the Windows Task Bar, click on RUN, and type in D:\Win95\Decomp95 and press enter. Decomp95 will load and update your system. You must restart your computer to continue. Again Click on Start on the Windows Task Bar, click on RUN, and type in D:\Win95\Setup and press enter. The Setup program will guide you through the installation process. If Setup finds some of your system files are out of date, Setup will try to update your files and advise you that it cannot continue, and you must restart your computer before it can complete the installation. Restart your computer. Run Setup again. Setup will try to pick up where it left off and finish installing Wire Buddy.

Installation (Win 98 / Win NT SR4)

        In the instructions below, we are assuming that D is the drive letter of your CD drive. If D is not the drive letter for your CD drive, substitute the correct letter.

To install from the CD:

        Click on Start on the Windows Task Bar, click on RUN, and type in D:\Win98\Setup and press enter. The Setup program will guide you through the installation process. If Setup finds some of your system files are out of date, Setup will try to update your files and advise you that it cannot continue, and you must restart your computer before it can complete the installation. Restart your computer. Run Setup again. Setup will try to pick up where it left off and finish installing Wire Buddy.

Note:
        The load on boot up function is disabled on Win NT. There are too many security and privilege issues involved with Win NT to make this option available.

Starting Wire Buddy

Click on Start on the Windows Task Bar, click on Programs, click on Wire Buddy folder tab and then click on Wire Buddy. If Wire Buddy is already running, you cannot start another instance of Wire Buddy. Most of the buttons, labels, and other items have Tool Tip Help. Hold the tip of the cursor over an item without pressing a button and a Tool Tip description will pop up describing the item. The Print Button in the lower left hand corner will illuminate whenever a printout is available.

There are options you can set to have Wire Buddy start when your computer starts. See Options for more details.

Size Wire

Enter in the Full Load Amperes of the device. Select copper or aluminum conductors. Select the insulation type of the conductors you will be using. The temperature raring of the type you select will appear next to the list box. Enter in the number of conductors that will be in the conduit along with the new circuit. Enter in the ambient temperature of the conductors. By default that temperature is entered in Celsius. If you prefer, you can enter the temperature in Fahrenheit adding an 'f' after it. As an example you could enter 89f. Wire Buddy will convert it when you click on Done or click on another text box. When you are finished entering data, click on Done. Wire Buddy will calculate the minimum wire size for the circuit. The conductors will be derated for ambient temperature, then derated for the number of wires in the conduit. Results will be displayed on the mini screen as a quick reference and the Print button will illuminate. To view detailed results, click on Print. The first line on the mini screen indicates which calculation was used. The second line shows the minimum wire size needed and the insulation type selected. The third line shows the results of the derating. This number shows that the conductor is above or meets the minimum that you require. It indicates that more conductors could have been installed in the conduit and/or a higher ambient temperature could be used. The fourth line indicates the maximum ampere rating of the circuit. The words "See Notes" may appear on the fifth line, indicating that there are notes to consider regarding the calculation.

If you were going to increase the load demand on existing wires by replacing a smaller unit with a larger one, you could enter in the data of the new device. If the wire size remains the same, no new wires would have to be installed.

Size GND/OCP

Enter in the maximum amperes of the conductors. That number can be calculated in the Size Wire function above. Select copper or aluminum conductors. When you are finished entering data, click on Done. Wire Buddy will calculate the minimum ground wire size and the fuse or breaker size for the circuit. The first line on the mini screen indicates which calculation was used. The second line indicates the minimum ground

wire to be used. The third line indicates the suggested fuse or breaker size. The words "See Notes" may appear on the forth line, indicating that there are notes to consider regarding the calculation.

Size Conduit

Select the type of conduit you want to use. Select the conductor insulation type. Use the arrows to scroll up or down to select a conductor size. Drag and drop conductors from the Wire Rack to the Conduit list box. You can mix conductor insulation types and conductor sizes. Each individual conductor's circular mills will be added together for the final calculation. You can drag conductors in both directions. If you have too many wires in the conduit you can drag them back to the wire rack. A counter above the Rack list box counts the number of wires currently in the conduit. When you have entered all the conductors you will need, including the ground, click on Done. Wire Buddy will calculate the smallest trade size conduit you can use. The first line on the mini screen indicates which calculation was used. The second line indicates the conduit size answer.

To find out if you can fit extra wires into an existing conduit, select the conduit as described above and drag the wires already installed into the Conduit list box. Then drag the wires you want to add to the Conduit list box. Click on Done. If the Conduit answer on line two of the mini screen is the same as the existing conduit, the wires are allowed.

Size Transformer

Transformer KVA

Clicking on the top blue knob toggles the calculation between KVA and FLA. Make sure the top knob is pointing upward. The words 'Transformer KVA' should appear in yellow. Select either Single phase or 3 phase power. Enter in the full load amperes needed on the secondary side of the transformer. Enter in the secondary voltage of the transformer. Click on Done. Wire Buddy will calculate the KVA of the transformer needed.

Transformer Full Load Amps

Clicking on the top blue knob toggles the calculation between KVA and FLA. Make sure the top knob is pointing downward. The words 'Full Load Amps' should appear in yellow. Select either Single phase or 3 phase power. Enter in KVA of the transformer. Enter in the secondary voltage of the transformer. Click on Done. Wire Buddy will calculate the Full Load Amperes of the transformer.

The first line on the mini screen indicates which calculation was used. The second line will display either Full Load Amperes or KVA, depending on which function was chosen. The third line indicates single or 3 phase power. The fourth line may indicate if notes are included in the printout.

Size Starter

Enter in the full load amperes of the device. Enter in the voltage of the device. Click on Done. Wire Buddy will calculate the minimum starter size.
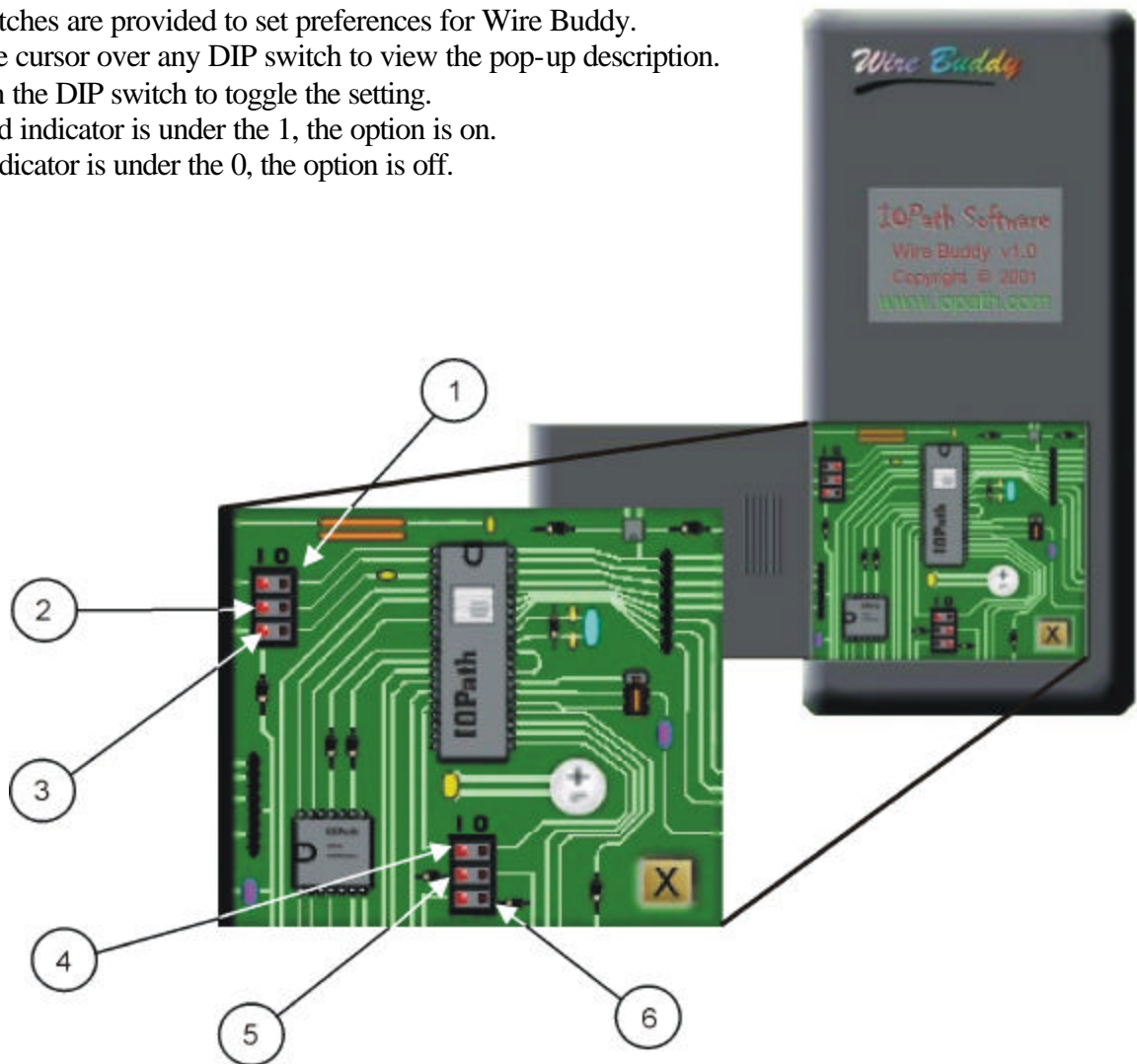
NEMA Enclosures

NEMA enclosure types can be difficult to remember. This accessory was designed to display the characteristics of the most common NEMA types. Use the arrows to index through the NEMA enclosure types. After choosing one, click on Done. The mini screen will display your choice and illuminate the print button so you can print out the enclosure description.

2002 NEC

If you purchase Wire Buddy, which is based on the 1999 NEC, you will receive a free update for the 2002 NEC when available.

Options   (Overview)

Dip switches are provided to set preferences for Wire Buddy.
Hold the cursor over any DIP switch to view the pop-up description.
Click on the DIP switch to toggle the setting.
If the red indicator is under the 1, the option is on.
If red indicator is under the 0, the option is off.

1. **Toggles 'minimize when not in use' on and off.**

2. **Toggles Auto-Print on and off.**

3. **Toggles 'terminal rating' between Auto and 75 C.**

4. **Toggles button sounds on and off.**

5. **Toggles menu sliding sounds on and off.**

6. **Load during boot-up (Not available on WIN NT).**

Options   (Description)

1. Toggles minimize when not in use on and off.
   This option, when turned on, will automatically minimize Wire Buddy when not in use. It will appear in the task bar at the bottom of the screen.

2. Toggles Auto-Print on and off.
   This option, when turned on will cause Wire Buddy to automatically print the calculation results whenever you click the Done button on one of the side menus.

3. Toggles terminal rating between Auto and 75 C.
   Calculations for circuits 100 amperes or less are based on 65 C terminal ratings and 75 C for circuits over 100 amperes per NEC. If all equipment being installed is rated for 75 C, you can force this rating 'on' for circuits below 100 amperes. Make sure all equipment is rated for 75 C.

4. Toggles button sounds on and off.
   This option, when turned on will play the button sounds through the sound card. No sounds are available on PC speaker.

5. Toggles menu sliding sounds on and off.
   This option, when turned on will play the menu sliding sounds through the sound card. No sounds are available on PC speaker.

6. Load during boot-up. (Not available on WIN NT).
   This option, when turned on will start Wire Buddy when your computer starts and minimize it into the Task bar.

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