P1000 AC Drive
Quick Start Procedure

The following procedure is a supplement to other documentation supplied with this equipment and will guide the user in properly wiring the P1000 and motor. It will also show the user how to configure the P1000 for a general purpose application.

DANGER! Improper wiring can and will cause bodily harm as well as damage to the equipment.

When installing the system, be sure to follow good wiring practices and all applicable codes. Ensure that the mounting of components is secure and that the environment, such as extreme dampness, poor ventilation, etc. will not cause system degradation.

Please read this cheat sheet and other documentation provided with the P1000 thoroughly before attempting any installation.

Step 1: P1000 Model Identification and Mounting

To make sure you received the correct model, it is essential to verify the P1000 nameplate with your order and make sure the P1000 has the correct rating so it can be used with your motor. Please check the nameplate information as shown in the example below.

Check that the available power will meet the required input power requirements.
- Ensure that the output power from the P1000 is compatible with the motor requirements.
- In the case of systems with more than one P1000, follow the above procedure for each P1000 and motor.

Mounting the P1000

The mounting of the P1000 is extremely important regarding environment and accessibility. Depending on your system, there are various models available and the mounting dimensions (footprint) may be different. Because the mounting procedure is fairly extensive, it is beyond the scope of this document; the user is referred to the P1000 Quick Start Guide (Document No. TOEP YAP1U 01) received with the P1000. Section 2.2, Mechanical Installation. Match the model you received and follow the procedure described in the manual to ensure a safe and functional installation. In cases where the system has more than one P1000, refer to the proper clearances required for adequate ventilation. Please pay particular attention to:
- The clearances to be maintained around the enclosure for adequate ventilation.
- The environmental specifications such as avoiding excessive dampness, extreme temperatures, chemical exposure, corrosive areas, etc. to avoid damage to the equipment and to maintain safety.

Removing and Attaching the Terminal Cover

Improper removal of the P1000 terminal cover as well as front cover can cause extensive damage to the P1000. To avoid damage to these items, please pay particular attention to the P1000 Quick Start Guide, Document No. TOEP YAP1U 01, Section 3.5, Removing and Attaching the Terminal Cover.

Step 2: Connect Motor and Line Power

Fig. 1 & 2 below show the electrical connections for the input power and motor terminals for various P1000 models. Select the proper diagram for the model you are installing (see Step 1). With this information, you will be able to make the proper connections.

Make sure to follow good wiring practices and all applicable codes. Ensure that the equipment is grounded properly as shown in Fig. 1.

DANGER! LETHAL VOLTAGES ARE PRESENT! Before applying power to the P1000, ensure that the terminal cover is fastened and all wiring connections are secure. After the power has been turned OFF, wait at least 5 minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards, or components.

WARNING: DO NOT CONNECT ANY OF THE FOLLOWING TERMINALS TO EARTH GROUND.

DC Bus terminals location varies by model.

Step 3: Real-time Clock Setup

This step shows how to setup the P1000 real-time clock for first use.

1. Power up the drive and set the real-time clock. The real-time Clock setup screen will appear at first power up.

Note: after the real-time clock is set this screen will not show again unless parameter o4-17 is set to “Set”.

Real-time Clock Setup Screen

Note: 2nd row of terminal board is shown here.

Step 4: Selecting Start/Stop and Speed Method

This step shows how to setup the sequence and reference method of the P1000. The sequence method determines how the P1000 drive receives its start and stop command and the reference method determines how the speed of the motor is controlled. Make sure all protective covers have been re-attached and power is turned on. DO NOT RUN THE MOTOR. This section may require you to change one or more P1000 parameters. Please refer to Step 5 for a detailed explanation on how to change parameters.

SELECT SPEED METHOD

b1-01

1. Adjust motor speed / frequency from the Digital Operator

Go to parameter b1-01, set value to 1. Run Source 1

To adjust frequency use and press .

2. Adjust motor speed / frequency from external terminals (0 - 10V / 4 - 20mA Signal)

Go to parameter b1-01, set value to 0. Run Source 1

(bFactory Default)

SELECT START/STOP CONTROL METHOD

b1-02

1. Start / Stop Control from Digital Operator

Go to parameter b1-02, set value to 1. Run Source 1

2. Start / Stop Control from external terminals (switch or relay contact)

Go to parameter b1-02, set value to 0. Run Source 1

(Factory Default)

User Terminals

Wiring Diagram: 2-Wire Control
Use for maintained contacts (Factory Default)

Wiring Diagram: 3-Wire Control
Use for momentary contacts (Set Parameter A1-03 to 3330)

Example: Jun 2nd, 2012. 3:30pm

Note: Do NOT adjust sec per month.

IMPORTANT

If no key is pressed within 30 sec, the operator will revert back to the main menu showing a “TIM” alarm (Alarm not set).

To set the real-time clock again disconnect and reconnect the operator.

NOTE: It is beyond the scope of this document to program the P1000 drive for network communication control. Please refer to the refer to the P1500 Technical Manual, (Document No. BEP YAP1U 01) for this selection.
### Step 5 Changing Parameters and Monitoring the P1000

This step shows how to access and modify a P1000 parameter as well as how to monitor P1000 signals such as output frequency and motor current. Make sure all protective covers have been re-attached and power is turned on. DO NOT RUN THE MOTOR.

#### Access Parameter Menu and Change Parameter Value

Press twice until the digital operator shows the parameter menu.

### Step 6 Application Setup

This step shows how to configure the P1000 for dedicated fan or pump applications.

Make sure all protective covers have been re-attached and power is turned on. DO NOT RUN THE MOTOR.

Available P1000 Application Macros:

- Pump without Automatic Regulation
- Pump with PI Control (Automatic pressure/flow regulation with transducer)
- Fan without Automatic Regulation
- Fan with PI Control (Automatic pressure/flow regulation with transducer)

#### Select Application

Press twice until the digital operator shows the parameter menu.

### Step 7 Check Motor Direction (Motor uncoupled from Load)

In this step the motor is checked for proper direction and operation. This test is to be performed safely from the digital operator. Apply power to the P1000 after all the electrical connections have been made and protective covers have been re-attached. At this point, DO NOT RUN THE MOTOR, the Digital Operator should display as shown in **Fig. 3**.

#### Motor Rotation Test

Press to select monitor.


The motor should now be operating at low speed (6.0 Hz) running in the correct forward (clockwise) direction.

Next, release on the Digital Operator.

If motor rotation is not correct, power down the drive, wait five minutes and swap 2 motor leads at the drive output terminals.

**DANGER**

After the power has been turned OFF, wait at least five minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards or components.

Use precaution, and refer to **Fig 1 or 2**, swap any two of the three output leads to the motor (U1T1, V1T2 and W1T3).

After the wiring change, repeat Step 7 and recheck motor direction.

**FREQUENTLY ASKED QUESTIONS**

**Question:** How do I adjust the time it takes the motor to speed up or slow down?

**Answer:** Increase acceleration time parameter C1-01 and deceleration time parameter C1-02.

**Question:** Why do I get a warning message on my Digital Operator?

**Answer:** Ensure the motor settings are correct for your application.

**Question:** How do I set the maximum or minimum frequency?

**Answer:** Set d2-01 = maximum upper frequency and d2-02 = minimum frequency. For example: d2-01 set for 95% = 54 Hz maximum frequency (0.9 x 60Hz).

**Question:** How do I prevent my drive from tripping on an OV fault (overvoltage) while my motor is running down?

**Answer:** Maintain constant motor characteristic on C1-02.

**Question:** How do I adjust the motor overload setting on C1-01?

**Answer:** Set parameter b1-01 for speed reference or b1-02 for start/stop selection.

**Question:** How do I adjust the time it takes the motor to speed up or slow down?

**Answer:** Adjust the acceleration time parameter C1-01 and deceleration time parameter C1-02.

**Question:** Do I need to run my motor below the maximum frequency?

**Answer:** No, the maximum frequency can be exceeded as long as the drive is not overloaded.

**Question:** How do I adjust the time it takes the motor to speed up or slow down?

**Answer:** Adjust the acceleration time parameter C1-01 and deceleration time parameter C1-02.