

## Description

### Introduction

The model PPF Power Factor transducer precisely measures the angle generated between voltage and current in a load.

The PPF compares one voltage and one current input. The transducer produces a dc output linearly proportional to the phase angle difference between the two inputs.

The dc output has a direct cosine relationship to power factor. Bipolar output indicates whether lagging or leading conditions exist. Although the output is proportional to the phase angle difference, actual power factor information (equal to the cosine of the phase angle) is readily available upon request.

## Installation

### Mechanical Installation

The PPF is enclosed in an extruded aluminum housing. The mounting plate features keyhole cutouts so that the entire housing can be removed by just loosening the screws. See the Surface Mount (SM) housing sheet for physical outline and mechanical installation requirements.

### Electrical Installation

All electrical connections are made to the terminal block on the front of the unit. See figure 1.

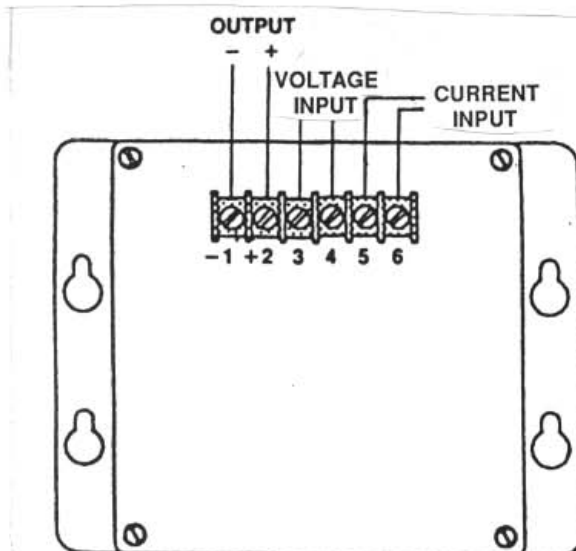


Figure 1. PPF Connections

**Voltage (potential).** All voltage connections are to the internal transformer terminations, which are balanced and isolated from each other. If the proper voltages are present and in the correct phase, either side of any voltage input may be commoned and/or connected to ground.

**Current.** Current inputs require security because an open circuit in the current transformer is hazardous. It is recommended that ring lugs be used for all connections. When used with binding head screws, these lugs provide a secure vibration-proof connection.

### Output

Constant current outputs do not react to resistance changes in the wire, within the very wide ranges specified, so that no calibration is required to compensate for lead length.

The low impedance constant current loops are not as susceptible to noise and transients as are voltage outputs, but should be protected by using shielded wire if the cable runs exceed 65 feet. Outputs from several transducers can be run in one common shield. The shield should be firmly grounded at one end only.

## Calibration

### Introduction

This section provides information necessary for unit calibration. Each unit is calibrated and checked at the factory for proper performance at the factory before shipping.

### Equipment Required

Dc current meter, 3-1/2 digit, accurate to within 0.05% or better, 1mA F.S.

Phase shifter 90°, 60°, or 45° for the transducers at 1.0, 0.7, and 0.5 full scale span accordingly.

### Procedure (Center Zero Transducers)

This procedure is written for a 60Hz transducer with  $0 \pm 1$ mA output. For other outputs, please modify accordingly.

Connect the equipment shown in figure 2.

**Important Note:** This document is complete as of the printing date; however, subsequent product changes may be reflected in companion documents.

## RETURN PROCEDURES

### To return equipment to Moore Industries for repair, follow these four steps:

1. Call Moore Industries and request a Returned Material Authorization (RMA) number.

#### Warranty Repair –

If you are unsure if your unit is still under warranty, we can use the unit's serial number to verify the warranty status for you over the phone. Be sure to include the RMA number on all documentation.

#### Non-Warranty Repair –

If your unit is out of warranty, be prepared to give us a Purchase Order number when you call. In most cases, we will be able to quote you the repair costs at that time. The repair price you are quoted will be a "Not To Exceed" price, which means that the actual repair costs may be less than the quote. Be sure to include the RMA number on all documentation.

2. Provide us with the following documentation:
  - a) A note listing the symptoms that indicate the unit needs repair
  - b) Complete shipping information for return of the equipment after repair
  - c) The name and phone number of the person to contact if questions arise at the factory
3. Use sufficient packing material and carefully pack the equipment in a sturdy shipping container.
4. Ship the equipment to the Moore Industries location nearest you.

The returned equipment will be inspected and tested at the factory. A Moore Industries representative will contact the person designated on your documentation if more information is needed. The repaired equipment, or its replacement, will be returned to you in accordance with the shipping instructions furnished in your documentation.

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ANY CAUSE OF ACTION FOR BREACH OF ANY WARRANTY BY THE COMPANY SHALL BE BARRED UNLESS THE COMPANY RECEIVES FROM THE BUYER A WRITTEN NOTICE OF THE ALLEGED DEFECT OR BREACH WITHIN TEN DAYS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH, AND NO ACTION FOR THE BREACH OF ANY WARRANTY SHALL BE COMMENCED BY THE BUYER ANY LATER THAN TWELVE MONTHS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH.

#### RETURN POLICY

For a period of thirty-six (36) months from the date of shipment, and under normal conditions of use and service, Moore Industries ("The Company") will at its option replace, repair or refund the purchase price for any of its manufactured products found, upon return to the Company (transportation charges prepaid and otherwise in accordance with the return procedures established by The Company), to be defective in material or workmanship. This policy extends to the original Buyer only and not to Buyer's customers or the users of Buyer's products, unless Buyer is an engineering contractor in which case the policy shall extend to Buyer's immediate customer only. This policy shall not apply if the product has been subject to alteration, misuse, accident, neglect or improper application, installation, or operation. THE COMPANY SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.



**WORLDWIDE • www.miinet.com**

United States • info@miinet.com Tel: (818) 894-7111 • FAX: (818) 891-2816	Belgium • info@mooreind.be Tel: 03/448.10.18 • FAX: 03/440.17.97	China • sales@mooreind.sh.cn Tel: 86-21-62491499 • FAX: 86-21-62490635
Australia • sales@mooreind.com.au Tel: (02) 8536-7200 • FAX: (02) 9525-7296	The Netherlands • sales@mooreind.nl Tel: (0)344-617971 • FAX: (0)344-615920	United Kingdom • sales@mooreind.com Tel: 01293 514488 • FAX: 01293 536852