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P/N 964774 rev.A

OPERATING INSTRUCTIONS
for
AMPROBE ®

Flexible Current Transducer
Model ACF-3000DM-A

AMPROBE

TABLE OF CONTENTS

LIMITED WARRANTY

Congratulations! You are now the owner of an AMPROBE® instrument. It has been quality crafted according to the highest standards of quality and workmanship. This instrument has been inspected for proper operation of all its functions and tested by qualified factory technicians according to the long-established standards of AMPROBE®.

Your AMPROBE® instrument has a limited warranty against defective materials and/or workmanship for one year from the date of purchase provided that the seal is unbroken or, in the opinion of the factory, the instrument has not been tampered with or taken apart.

Should your instrument fail due to defective materials, and/or workmanship during the one year warranty period, return it along with a copy of your dated bill of sale which must identify instrument by model number and manufacturing number.

AMPROBE
Tel: 305-423-7500
Fax: 305-423-7554
Tech. Support: 1-800-327-5060

Outside the U.S.A. the local Amprobe representative will assist you. Above limited warranty covers repair and replacement of instrument only and no other obligation is stated or implied.

! ! WARNING ! !
(Do not use until you have read this!)

High-voltage potentials may exist in the vicinity of the desired current measurements. Use locally approved safety procedures when working near high-voltage potentials. It is recommended not to install the Flexible Transducer around a live bus that is at a high-voltage potential. If installation is not possible when the bus is disconnected from main supply, use appropriate gloves and/or equipment that are approved for working around high-voltage potentials when installing the Flexible Transducer in the vicinity of these hazardous potentials.

INTRODUCTION

The AMPROBE Flexible AC Current Transducer Model ACF-3000DM-A is an assembly similar in purpose to a CTor current transformer. It may be used to measure AC currents from as low as several amps to a maximum of 3.0kA rms. The device output is an analog voltage that is proportional to the current in the conductor. The output signal is isolated from the hazardous conductor potential and is an exact replica of the AC current waveform in the conductor. The output signal is available via a 2 pin snap connector.

ACF-3000DM-A ELECTRONICS PACKAGE

The ACF-3000DM-A electronics package is permanently connected to the transducer and comes standard with two ranges selectable by the switch mounted on the side of the electronics package. The ranges are 300A and 3.0kA yielding respectively 300A and 3.0kA rms AC as the maximum current that can be measured. When one of the ranges is selected, the unit is automatically turned on.

Note: The 3.0kArange should only be selected if the measured current is over 300A.

When the ACF-3000DM-A is turned on, the LED mounted behind the front label blinks once, then goes out to minimize drain on the battery. When the batteries are nearing the end of their life the LED flashes approximately twice per second, the batteries should be replaced and soon. If the LED fails to flash once when the unit is turned on, the batteries are dead, replace immediately.

The ACF-3000DM-A comes equipped with an external mini jack located on the package. This is for those wanting to supply power to the ACF-3000DM-A for a longer period than the internal battery life will allow. An external DC power supply is available for this purpose but is sold as an option . The power required is +3.0VDC/10mA.

FLEXIBLE AC CURRENT TRANSDUCER

Fig. 1 - ACF-3000DM ELECTRONICS PACKAGE

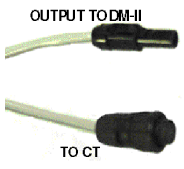

Fig. 2a - ACF-5A: OUTPUT SIGNAL SUPPLIED ADAPTER FOR THE DM-II™

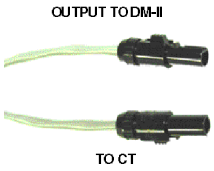

Fig. 2b - ACF-5CE: OUTPUT SIGNAL SUPPLIED ADAPTER FOR DM-II PRO & DM-II CE

The ACF-3000DM-A design utilizes the light weight and flexibility of the Flexible AC Current Transducer. This transducer is a versatile current probe that may be wrapped around most conductors. Its application versatility and high-voltage isolation rating clearly distinguish the ACF-3000DM from other current measuring methods. The measuring transducer is constructed from nonferrous materials, minimizing any circuit loading.

Note: The ACF-3000DM-A will produce twice the output if you wrap the transducer around the conductor twice.

The frequency response of the ACF-3000DM-A is wide compared to conventional CTs. This allows the user to monitor a much wider range of line harmonic components than conventional CTs allow. The ACF-3000DM-A was designed to be very flexible, larger in aperture and smaller in cross section than many conventional CTs. This allows measurement in tight places as never before possible.

OPERATION

Fig. 3 - ACF-3000 DM-A

Fig. 4 - LATCH OPENED

Fig. 5 - LATCH CLOSED

The ACF-3000DM-A was designed to allow the operator to connect this measurement device around a conductor without disconnecting the conductor as many CTs presently demand. The Flexible AC Current Transducer is installed around the conductor with the molded-in arrow on the latch (Fig. 4) pointing in the direction of conventional current flow. Conventional current flow is defined as current flowing from the positive to the negative potential, or in case of AC current the arrow should face the load.

The Flexible AC Current Transducer must be installed with the interconnection cable on the outside of the loop when the latch is engaged. The polarity arrow, the double insulation, and the warning symbols will all be on the outside of the loop.

There is minimal shock hazard using the ACF-3000DM-A, as the transducer does not generate high voltages at low frequencies. Each transducer has been Hi-Pot tested to several thousand volts with no voltage breakdown. This particular characteristic allows high-current measurement (with a wide frequency bandwidth) of conductors at less than 600VAC potential to earth. Do not exceed the minimum bending radius of the Flexible AC Current Transducer when installing the transducer around the conductor. Exceeding the bending radius will degrade the measurement accuracy.

Make sure the Flexible AC Current Transducer and its output cable are clean before installing them around the conductor. If the transducer and cable are not clean, the contaminants on them may provide a conductive path for a high-voltage breakdown. Also, check the transducer and output cable for cuts and abrasions. Do not use the transducer if damaged.

To measure AC current, open the ACF-3000DM-A by squeezing the latch, encircle the conductor to be measured, then snap the ACF-3000DM-A ends together (Fig. 4). Select desired amps range using the switch on the side of the electronics package (Fig. 2).

Connect the ACF-3000DM-A output cable to your measuring instrument using an adapter.
Set up the ACF-3000-DM-A range to either 300 or 3000A respective to the setup on the measuring instrument

Example:

Range (Amps)	Proper Setup on the DM-II		Proper Setup on the ACF3000-DM-A
<300	ACF3000	300	300
<3000	ACF3000	3000	3000

Output:
300ARange: 1.0mVAC/Amp
3000A Range: 0.1mVAC/Amp

Return the ACF-3000 range switch to the OFF position when measurement is completed to preserve battery life.

MAINTENANCE

Preventive maintenance primarily consists of cleaning the transducers and cables to prevent surface contamination. Use a mild detergent and water to clean the transducers and cables. Remove the detergent with clear water, then wipe dry with a clean cloth.

Note: The use of solvents as cleaners is not recommended unless thoroughly tested and found harmless to all surfaces and parts. Do not submerse current transducer into water or other fluids.

BATTERY REPLACEMENT

1) Using a coin, turn a lock from close position marked as
to open marked as
2) Open the cover of the battery compartment by lifting it.
3) Replace batteries (note the polarization marked on the bottom of the battery compartment).
4) Replace the cover of the battery compartment.
5)Turn a lock from open to close position

! ! SAFETY WARNING ! !

Before removing the battery cover, make sure that the Flexible AC Current Transducer is removed from around any active conductor.

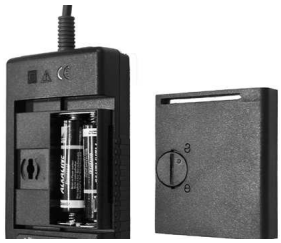

Fig. 6 - BACK OF ACF-3000DM-AW/ BATTERY COVER REMOVED

SPECIFICATIONS

Measuring Ranges:	300A/3000A
Output Sensitivity:	1mV/0.1mV/A (AC coupled)
Accuracy: (at 25°C)	±1% of range
Frequency Range:	10Hz to 5kHz
Phase Error:	±1° (45 to 65 Hz), ±10° (at 5 kHz)
Linearity:	±0.2% of reading from 10% to 100% of range
Position Sensitivity:	±2% of range, cable >25mm (1”) from coupling
External Field:	±1% with cable >200mm (8”) from head
Minimum Load:	100kW for specified accuracy
Noise Level:	1.0mV rms (0.3% of range)
Operating Temperature:	-20°C to 85°C (-4°F to 185°F) Electronics
Storage Temperature:	-20°C to 85°C (-4°F to 185°F) Electronics
Gain Variation:	±0.08%/°C
Common Mode Voltage:	Voltage between the Output the Earth must not exceed 30V
Power Supply:	2 x AA/MN1500 LR6 (1.5V) batteries
Battery Life:	4000 hours, 3000 hours typical (4 months cont.)
Low Battery Indication:	Red LED flashing
External Power:	Battery eliminator, via 2.1mm connector, 3V DC Socket type A16M500
Safety:	BS EN61010-1: 1993, 600V CATIII Pol. Deg 2
EMC:	EN61326: 1998
Enclosure:	IP5X, Flame retardant UL94-VO rated
Material:	Valox 357 X
Output Connections:	Hypotronics connector type DO1EEB306FST
Weight:	0.19 kg (0.4 lb)

Measuring Head	
Cable length:	610mm (24 inches), double insulated
Cable Diameter:	14.3mm (0.562 inches)
Bend Radius:	38.1mm (1.5 inches) minimum
Connecting Cable:	2m (78.7 inches) long, double insulated
Material:	TPE rubber, Polypropylene, UL94-VO rated
Operating Temperature:	-20°C to +90°C (-4°F to 194°F) Head
Storage Temperature:	-40°C to +105°C (-40°F to 221°F) Head
Safety:	BS EN 61010-1: 1993, 600V CAT III Pol. Deg 2
Weight:	0.18kg (0.4 lb)

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