

Section 1
Introduction

RECEIVING INSTRUCTIONS

Check the equipment received against the packing list to ensure that all materials are present. Notify Biddle Instruments of any shortage. Telephone (215) 646-9200.

Examine the instrument for possible damage received in transit. If any damage is discovered, file a claim with the carrier at once and notify Biddle Instruments or its nearest authorized sales representative, giving a detailed description of the damage.

This instrument has been thoroughly tested and inspected to meet rigid specifications before being shipped. It is ready for use when set up as indicated in this manual.

GENERAL INFORMATION

This Calibration Standard has been designed for use as a reference transformer for checking the accuracy of the Biddle Three-Phase TTR[®] (Transformer Turn Ratio Test Set) Catalog Number 550100 series. The standard is also useful for troubleshooting and repair of the instrument. Each Calibration Standard is supplied with a Calibration Certificate of turns ratio accuracy traceable to NIST. NIST is unable to furnish traceability on ratios above 1000.

The standard is essentially a multi-winding toroidal autotransformer whose turns are controlled by three decade switches and a four-step multiplier switch. The transformer provides a ratio range of 0.8 to 2220.

The standard operates on the principle that the voltage ratio of a transformer at no load is almost exactly equal to the true turn ratio. The major source of error is the primary impedance drop due to the magnetizing current. High precision ratios are achieved by using a toroidal core of high permeability, by making the resistance of the exciting winding low, and by use of essentially null-balance comparison techniques.

Section 3
Specifications

ELECTRICAL

Turns ratio range: 0.8 to 2220

Turns ratio resolution: 0.01 up to ratios of 11.1
0.1 for ratios between 10.0 and 111.0
1 for ratios between 100 and 1110
2 for ratios between 200 and 2220

Turns ratio accuracy: ± 0.05 percent of setting

NOTE

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Exciting voltage: 40 to 120 V, 50/60 Hz

Exciting winding: H1-H2 terminals

Terminals provided: H1 and H2: exciting winding
X1 and X2: secondary winding
Ground

ENVIRONMENTAL

Operating temperature range: -4 to 122°F (-20 to 50°C)

Storage temperature range: -58 to 140°F (-50 to 60°C)

Relative humidity: 0 to 90 percent noncondensing (operating)
0 to 95 percent noncondensing (storage)

PHYSICAL DATA

Dimensions: 13-1/2 x 10-1/4 x 8 in. (L x W x H)
(34.5 x 26 x 20.5 cm)

Weight: 16 lb (7.5 kg)

Case: Bronze colored, impact-resistant,
polycarbonate with removable lid and carrying
handle.

Section 4

Controls and Terminals

See Figure 1 for identification and location of Calibration Standard controls and terminals. Their function is described in the following. Figure 2 shows a simplified schematic of the standard.

H Winding Terminals - High-voltage (H) winding terminals of Calibration Standard. This is the exciting winding and must be connected to the corresponding H test leads of the three-phase TTR test set.

X Winding Terminals - Low-voltage (X) winding terminals of Calibration Standard. This winding must be connected to the corresponding X test leads of the three-phase TTR test set.

Ground Terminal - This binding post allows connection of the standard to earth ground.

RATIO Multiplier Dial - Four-position rotary dial allows selection of 1, 10, 100, and 200 ratio multiplier values.

1.0 Step RATIO Dial - Eleven-position rotary dial allows selection of ratio values of .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. The .8 dial step is used for setting ratio values between 0.8 and 1.0.

0.1 Step RATIO Dial - Eleven-position rotary dial allows selection of ratio values of 0, .1, .2, .3, .4, .5, .6, .7, .8, .9, 1.0.

0.01 Step RATIO Dial - Eleven-position rotary dial allows selection of ratio values of 0, .01, .02, .03, .04, .05, .06, .07, .08, .09, .10.

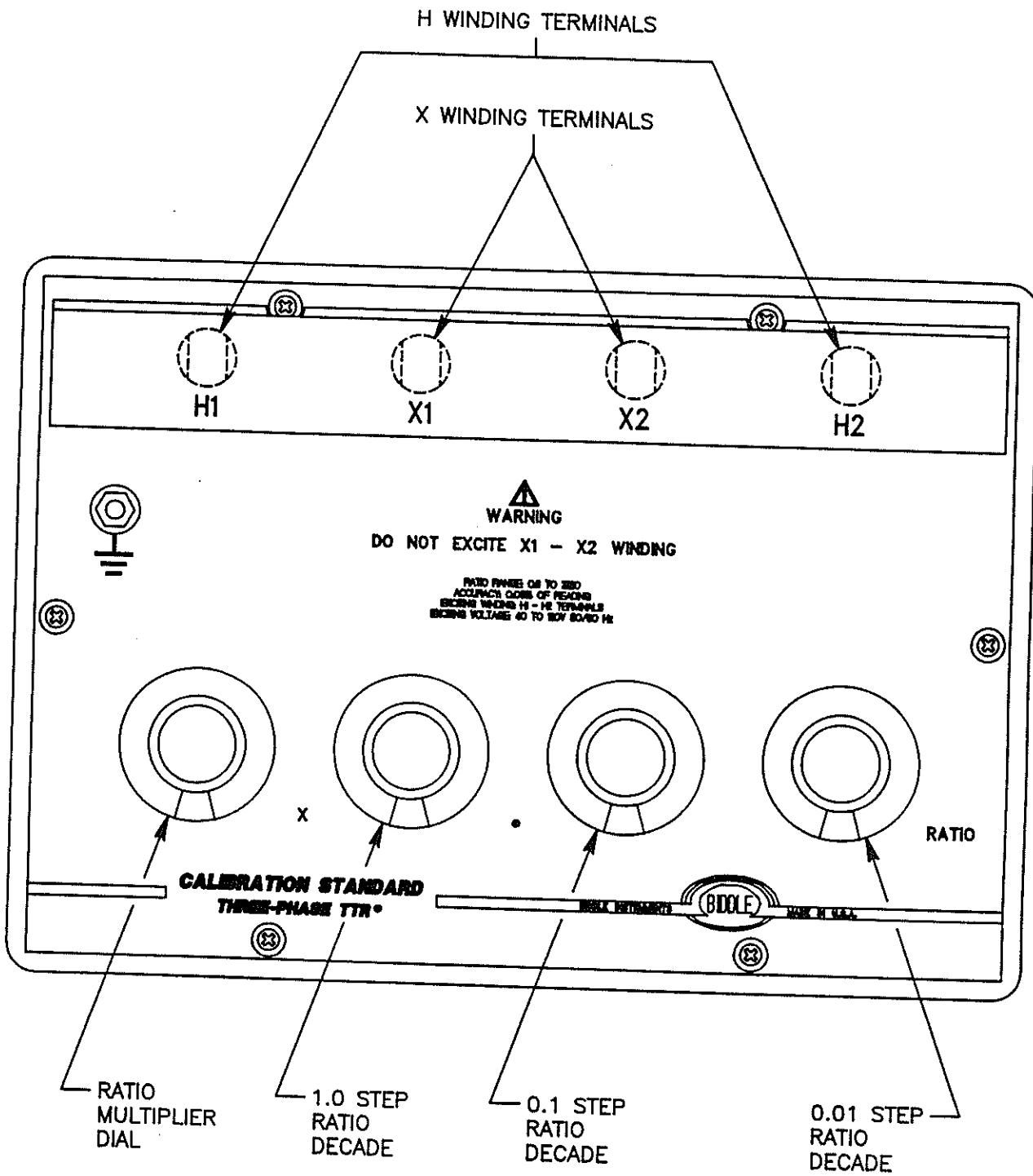


Figure 1: Control Panel