DEPARTMENT OF

TRADE AND COMMERCE
CANADA

SD-EA.81

STANDARDS DIVISION

OTTAWA. June 30, 1952.

TYPE APPROVAL

BRISTOL MODEL W878 THERMOVERTER

The apparatus specified and illustrated herein has been duly approved by the Standards Division under the provisions of The Electricity Inspection Act, Chap.22, 1928, as amended, and may be admitted to verification in Canada.

Apparatus Approved: Model W878 Thermoverter, manufactured by the Weston Electrical Instrument Corporation for The Bristol Company, Waterbury, Conn., U.S.A., and distributed in Canada by The Bristol Company of Canada Limited, 71-79 Duchess Street, Toronto, 2, Ontario.

Rating of Apparatus:

Amperage	5 amperes per element
Voltage	115 volts
Input Wattage	500 at any voltage from 100 to 135
Overload Capacity	400%
Number of Elements	1 or 2
D.C. Output	Single Element: 50 millivolts at full load Double Element: 100 millivolts at full load
Response Time	Less than ½ second

Description: The Bristol Thermoverter embodies two electrical circuits, one having current and potential terminals suited for connection to the secondaries of instrument transformers on an A.C. metering system, and one having two terminals between which is developed a D.C. emf. directly proportional to the power load under measurement. The A.C. system involves the circuit of the thermal wattmeter, by which two thermocouple systems are electrically heated to temperatures whose difference is proportional to the value in watts of the power being measured, so that there is developed between them a thermo-electromotive force proportional to their temperature difference and therefore to the power in the A.C. system. The A.C. connections are identical to those of wattmeters for use with instrument transformers.

The device is manufactured in two forms, a single-element type and a double-element type. The two-element unit may be used in the measurement of three-phase three-wire loads. The single-element unit may be used for single-phase loads or in combination with a two-element unit for the measurement of three-phase four-wire circuits. The volt-ampere consumption is small so as to impose a negligible burden on instrument transformers. No damage can be done to the converter by either open-circuiting or short-circuiting the D.C. terminals under any load conditions.

Bristol thermoverters may be used for totalizing or telemetering system loads over considerable distances when used with the proper potentiometer.

Reversal of power flow in the measuring circuit effects a reversal of millivolt output of the converter; therefore if a centre zero or other suitable chart is used on the recording potentiometer, a record will automatically be obtained without manual attention regardless of the direction of flow of power. Adjustment is provided for obtaining a selected portion of the millivolt output in order to establish the desired watt millivolt ratio. Where totalization is involved, all the converters must be adjusted to give identical ratios.

Limitations: Thermoverters may be used for billing purposes only with approved self-balancing potentiometer recorders, and must be sealed.

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Ref: A-258

BRISTOL MODEL W8/8 THERMOVERTER