



TRADE AND COMMERCE
CANADA

SD-EA.134

STANDARDS DIVISION

OTTAWA.....December 11, 1953.

MODIFICATIONS OF TYPE APPROVALSANGAMO TYPES "CFA" AND "CFS" SINGLE-PHASE WATTHOUR METERS

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

Apparatus Modified: Types "CFA" and "CFS" Single-Phase Watthour Meters, manufactured by the Sangamo Company Limited, Leaside, Toronto 17, Canada.

Rating of Apparatus: The ratings of meters affected were originally approved under the following:

- NRC-91 - August, 1936
- NRC-119 - January, 1939
- NRC-145 - May, 1940
- SD-EA.67- August, 1951.

It should be noted that this approval covers the 2.5 ampere (nominal) meter incorporating all the modifications although the 2.5 ampere meter is not specifically included in the references above.

The complete new current ratings are:-

Nominal Amperes	60-cycle Maximum Amperes		25-cycle Maximum Amperes	
	CFA	CFS	CFA	CFS
2.5	10	10	7.5	7.5
5.0	20	20	15	15
10	40	40	30	30
15	60	60	45	45
25*	100	100	75	75
50**	150	200	125	100

* Meter may be equipped either with a standard register (that is, with no multiplier) or with a register with a multiplier of 10.

** Meter shall be equipped with a register with a multiplier of 10.

Modifications: The modifications which apply to the Sangamo types "CFA" and "CFS" and which are approved herewith are six in number:-

1) New maximum rating for 60-cycle meters

The range of all 60-cycle capacities has been extended to correspond with that of the 15-ampere meters, namely maximum current of four times nominal, excepting the 50-ampere type "CFA". As built previously, the 15-ampere meter had a maximum, but unstated, capacity of 60 amperes. This was obtained by using a stronger potential electro-magnet and weaker current

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electro-magnet than the other ratings. Essentially, the modification to extend the ranges of the other ratings consists of using the stronger potential electro-magnets throughout. This, in turn, necessitates weaker current electro-magnets, which are obtained by a reduction of the stack of laminations with the corners cut off to reduce the pole faces. The windings are unchanged. The 15-ampere meter, alone, remains unchanged as to electro-magnets, except as noted under voltage performance.

The maximum capacity of the 50-ampere "CFA" meter is limited, by the base and terminal construction, to 150 amperes. On the other hand, by silver-soldering the terminals directly to the current coils, the maximum capacity of the 50-ampere, 60-cycle "CFS" meter has been raised to 200 amperes.

All maximum current ratings will henceforth be stamped on the nameplate.

2) Improved voltage performance on 60 cycles

The modification to improve voltage performance consists in adding two narrow leakage strips in the potential electro-magnet. This is the only electro-magnet change in the 15-ampere, 60-cycle capacity.

3) New damping magnets

All capacities, 25 or 60 cycles, will have Alnico, or equivalent, damping magnets. These are the same magnets as used in the types "EDA" and "EDS" meters, but a different method of mounting will be used. No adjustment is used radially but two micrometer screw adjustments are provided. The Class I temperature compensation is identical with that in the types "EDA" and "EDS" meters approved under NRC-166, January 1947.

4) New potential coil insulation


Mainly for manufacturing reasons, potential coils are to have wrap-around insulation instead of spirally-wound fabric tape. The lead connects directly to a tab terminating at the inner end of the winding, and this reduces the amount of insulation required on the end of the coil.

5) Maximum ratings for 25-cycle meters

Meters for 25 cycles will be unchanged as to electro-magnets, but maximum current ratings will be three times nominal up to and including the 25-ampere nominal rating. For the 50-ampere "CFA" meter, maximum current will be 125 amperes, and for the "CFS" 100 amperes. Maximum amperes will be marked on the nameplate.

6) New nameplate and magnet mounting

Since the new magnet requires a mounting entirely different from the previous mounting, the grid also has been altered. This, in turn, has made necessary a completely new nameplate.


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