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NOTICE OF APPROVAL
AVIS D'APPROBATION

E-64-2

Ottawa, July 21, 1977

Sangamo Type "LY-" Polyphase Thermal KVA Demand Meters

Types LYP, LYS and LYF (Transformer Types)

2½ element delta for use on 3-phase 4-wire delta service
Voltages 240 and 480
Max. Current (amperes) 8
*Full Scale Demand (kVA) 3
*Multiplier 2
Scale 1500 voltamperes and 1.5 kVA
Single phase kVA test constant (series) 1.154

Types** LYP and LYS (Self Contained)

2½ element delta for use on 3-phase 4-wire delta service
Voltages 240 and 480

Max. Current (amperes)	25	50	100	200
*Full Scale Demand (kVA)	10	20	40	80
*Multiplier	10	20	40	80

Scale 1000 voltamperes and 1.0 kVA on all ratings
Single phase kVA test constant (series) 1.154
*Full scale value and multiplier are given for 240 volts, for 480 volts multiply by 2.

**Maximum current of "P" base meters is 100 amperes.

Frequency 50 Hz and 60 Hz (all types and ratings)

Indication (all ratings) 90% in 15 minutes, 99% in 30 minutes.

Potential Circuit Burden at Rated Voltage

60 Hz			50 Hz		
1.6 W	1.9 VA	1.1 RVA	1.7 W	3.2 VA	2.7 RVA

Transformer Type Current Coil Burden at 5 amps

	60 Hz			50 Hz		
Phase B & C	0.7 W	0.7 VA	0.1 RVA	0.7 W	0.7 VA	0.1 RVA
Phase A	1.1 W	1.1 VA	0.2 RVA	1.1 W	1.1 VA	0.2 RVA

Single Phase Test Constants

Current Coil A only	1.366
Current Coil B only	2.0
Current Coil C only	2.0
Current Coils B plus C	1.0
All Coils in Series	1.154

Description

This Notice constitutes an addition to Notice of Approval E-64-1 to include the 2½-element delta service.

The outputs of the internal voltage and current transformers are rectified and added and fed into the heater networks of the sensing elements in a manner similar to other "LY" type meters.

The voltage selected for metering is obtained from two internal potential transformers, the primary windings being connected across potential BC and the secondaries combined to produce an output proportional to ½ line voltage.

This is the correct voltage for metering single phase loads, but is too low by the factor $\sqrt{3}/2$ for balanced polyphase loads. To compensate for this, the internal

current transformer in line A is made to deliver an output higher than those in lines B and C by a factor of 1.464 or $2\sqrt{3}-2$.

The explanation of the single phase test constants is presented in tabular form as follows.

	Wattmeter Reading	Effective Load Applied 3ø4WΔ Meter	Meter Reading	Single Phase Test Constant
Current Coil A	IV	IV	*1.464 $\frac{IV}{2}$	1.366
Current Coil B	IV	$\frac{IV}{2}$	**$\frac{IV}{2}$	2.0
Current Coil C	IV	$\frac{IV}{2}$	$\frac{IV}{2}$	2.0
Coils B plus C	IV	$2\frac{IV}{2}$	$2\frac{IV}{2}$	1.0
All Coils in Series	IV	$2\frac{IV}{2} + IV = 2IV$	$3.464\frac{V}{2} = \sqrt{3}IV$	$1.154 = \frac{2}{\sqrt{3}}$

*Meter Internal Current Transformer A delivers a higher output by a factor of 1.464.

**Meter Internal Voltage Transformers deliver an output proportional to ½ the applied voltage.

Approval granted to:

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