



Consumer and
Corporate Affairs

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Standards

Normes

**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

<u>60 Hz</u>			<u>50 Hz</u>		
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

	<u>60 Hz</u>			<u>50 Hz</u>		
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.

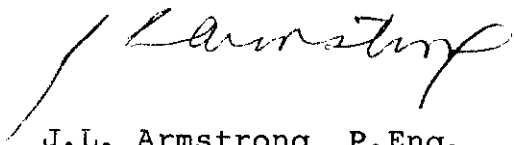
	<u>Wattmeter Reading</u>	<u>Effective Load Applied</u> $3\phi 4W\Delta$	<u>Meter Reading</u>	<u>Single Phase Test Constant</u>
Current Coil A	IV	IV	* $1.464 \frac{IV}{2}$	1.366
Current Coil B	IV	$\frac{IV}{2}$	** $\frac{IV}{2}$	2.0
Current Coil C	IV	$\frac{IV}{2}$	$\frac{IV}{2}$	2.0
Coils B plus C	IV	$\frac{2IV}{2}$	$\frac{2IV}{2}$	1.0
All Coils in Series	$IV \frac{2IV}{2} + IV = 2IV$	$3.464 \frac{IV}{2} = \sqrt{3}IV$	$1.154 = \frac{2}{\sqrt{3}}$	

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

**Meter Internal Voltage Transformers deliver an output proportional to $\frac{1}{2}$ the applied voltage.

Approval granted to:

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