DEPARTMENT OF TRADE AND COMMERCE

STANDARDS BRANCH

E-64

OTTAWA February 20, 1963.

NOTICE OF APPROVAL

FOR

SANGAMO TYPE "LY_" POLYPHASE THERMAL KVA DEMAND METER

Apparatus

Types LYA and LYS

Network for use on 2-wires and Neutral of 3-phase 4-wire Y service

	Voltages	120, 240, 277 and 345 volts
	Max. Current Amperes	50 100 200
*	Full Scale (KVA)	12 24 48
*	Multiplier	10 20 40
	Scale	1200 voltamperes and 1.2 kva
	Single Phase KVA Test Constant	1.0

Note: Network meter must not be used on a 3-phase 3-wire service

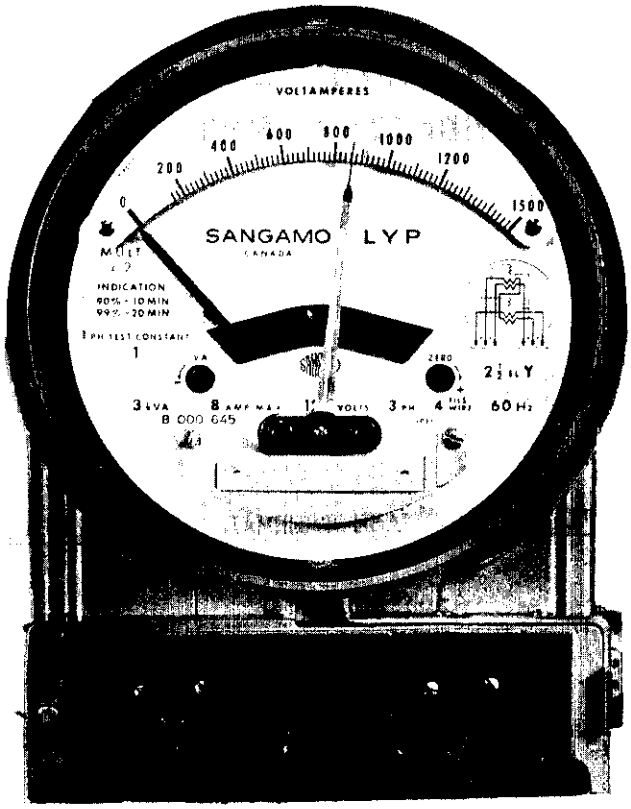
Types LYP# and LYS

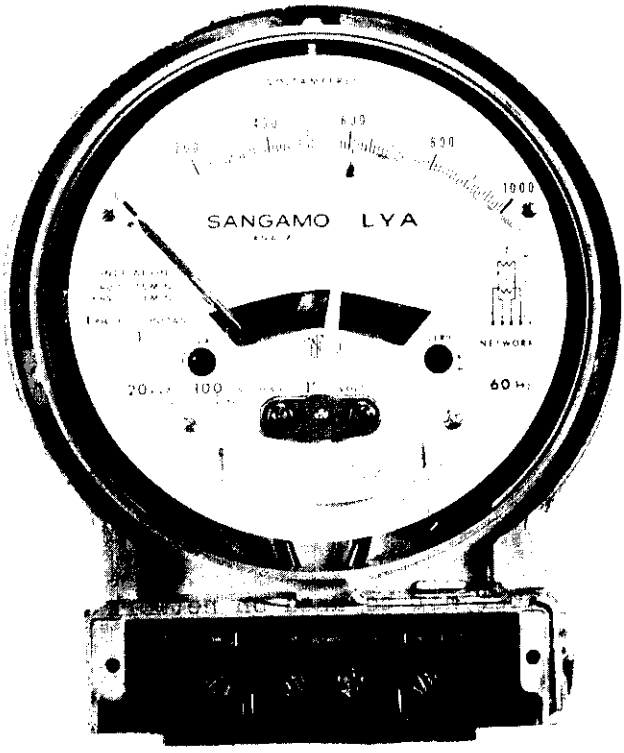
For use on a 3-phase 3-wire service

	Voltages	120, 240, 480 and 600 volts
	Max. Current Amperes	8 25 50 100 200
*	Full Scale (KVA)	1.5 5 10 20 40
*	Multiplier	1 5 10 20 40
	Scale	1500 voltamperes and 1.5 kva on 8 ampere meter 1000 voltamperes and 1.0 kva on other ratings
	Single Phase KVA Test Constant	0.866

Note: 3-phase 3-wire meter must not be used on network service or on a 3-phase 4-wire Y service with delta connected CT's.

\# Maximum current rating on P base meters is 100 amperes.


VOLTAMPERES
0
200
400
600
800
1000
1200
1500
SANGAMO LYP
CANADA
INDICATION
90% - 10 MIN
99% - 20 MIN
1
ZERO
60 Hz


SANGAMO LYA
60 Hz

2 1/2 Element wye for use on a 3-phase 4-wire Y service

	Voltages	120, 240, 277 and 345 volts				
	Max. Current Amperes	8	25	50	100	200
*	Full Scale (KVA)	3.0	9	18	36	72
*	Multiplier	2	7.5	15	30	60
	Scale	1500 voltamperes and 1.5 kva on 8 amp. meter 1200 voltamperes and 1.2 kva on all other ratings				
	Single Phase KVA Test Constant	1.0				

Type LYF

			2 1/2 Element Y
	Service	3-phase 3-wire	3-phase 4-wire Y
	Voltage	120,240,480,600	120,240,277, 345
	Nominal Amperes	5	5
	Maximum Amperes	8	8
*	Full Scale (KVA)	1.5	3.0
*	Multiplier	1	2
	Scale	1500 voltamperes	1500 voltamperes
	Single Phase KVA Test Constant	.866	1
	Elements in Series	433 va = 1000	667 va = 1000x2
	Frequency	50 hz and 60 hz (all types and ratings)	
	Indication (all ratings)	90% in 15 minutes. 99% in 30 minutes	

* Full Scale value and Multiplier are given for 120 volts. For other voltages multiply by the voltage ratio (for 277 volts use 2.5).

Description

The mechanical details of construction of the type LY- are the same as those used in the type "WY-" thermal KW demand meter circular E-63, but because the pointer indication is in arithmetic voltamperes the internal circuitry is different and the heaters have resistances of 200 ohms.

These heaters are connected in the conventional bridge circuit, and are supplied with rectified DC obtained from moulded diffused silicon diodes and where a full wave bridge rectifier is employed, the four diodes are moulded in one package.

The filter circuit is in the current circuit and consists of a small reactor and associated capacitors.

The potential circuit is a centre-tapped full wave rectifier circuit with each potential added in series before it is applied to the heater bridge.

The current circuit is a straight full wave rectifier circuit with the four diodes in one moulded package.

As the type "LY-" is a rectifier type of instrument, it is independent of power factor but is subject to errors due to waveform distortion, and should only be verified on a test board known to produce a waveform having low harmonic content, particularly if a wattmeter or rotating standard is used as a reference.

On the 3-phase 3-wire 2-element meter the 3rd line current is derived by the vector addition of the other two line currents, then all three are rectified and added in parallel.

This gives a single phase demand test constant of $\sqrt{3}/2$ or .866.

On the 3-phase 4-wire Y meter, the 3 line currents are rectified and added in parallel.

The 2-element network meter is identical to the 2-element 3-phase 3-wire meter except that in the former, the third line current has been eliminated.

For this reason although they are both 2-element meters they are not interchangeable and must only be used on the circuits for which they are designed. For this reason the customary designation "2-element" will not appear on the nameplate because of possible misapplication.

The single phase test constant shown in the illustrations will be changed to "Constant D'essai, Test Constant KVA 1 ph".

Approval granted to:

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Reference: SL-100-93A