DEPARTMENT OF TRADE AND COMMERCE

STANDARDS BRANCH

E-63

OTTAWA February 13, 1968.

NOTICE OF APPROVAL

FOR

SANGAMO TYPE "WY-" POLYPHASE THERMAL KW DEMAND METERS

Apparatus

Types WYA and WYS

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

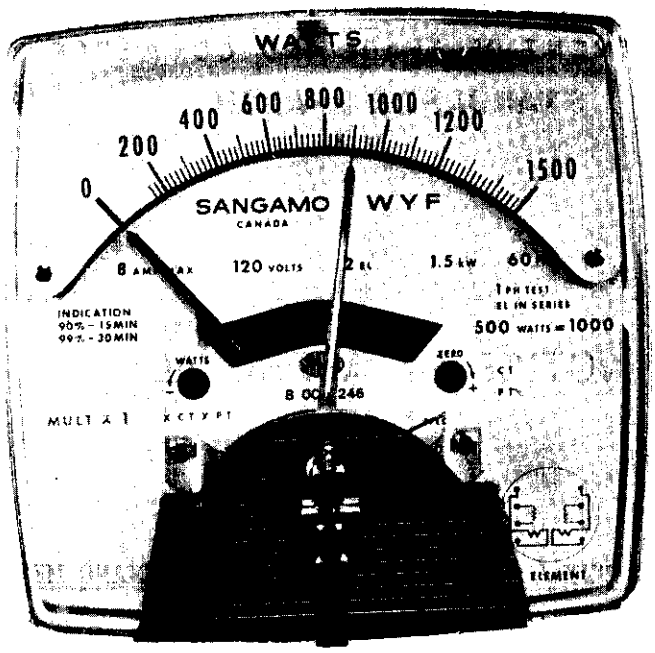
	Voltages	120, 277 and 345 volts		
	Max. Current Amperes	50	100	200
*	Full Scale (KW)	12	24	48
*	Multiplier	10	20	40
	Scale	1200 watts and 1.2 KW		

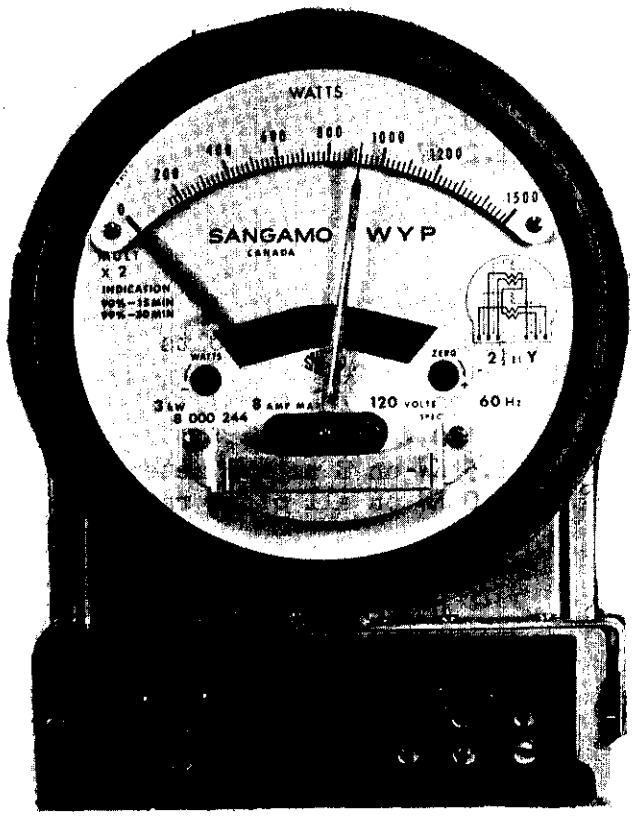
Types WYP# and WYS

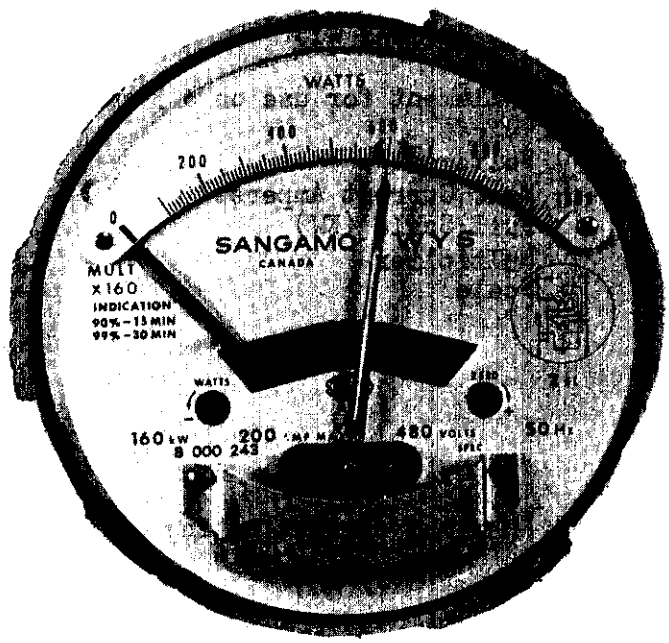
2-Element for use on a 3-phase 3-wire service

	Voltages	120, 240, 277, 345, 480 and 600 volts				
	Max. Current Amperes	8	25	50	100	200
*	Full Scale (KW)	1.5	5	10	20	40
*	Multiplier	1	5	10	20	40
	Scale	1500 watts and 1.5 KW on 8 ampere meter 1000 watts and 1.0 KW on all other ratings.				

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


WATTS
0
200
400
600
800
1000
1200
1500
SANGAMO
CANADA
WYF
120 VOLTS
1.5 kW
INDICATION
90% - 15 MIN
99% - 30 MIN
500 WATTS = 1000
ZERO
ELEMENT


WATTS
SANGAMO
CANADA
WYP
MULT
x 2
INDICATION
90% - 15 MIN
99% - 30 MIN
ZERO
3 kW
120 VOLTS
60 Hz


WATTS
SANGAMO
CANADA
MULT
x 160
INDICATION
90% - 15 MIN
99% - 30 MIN
ZERO
160 kW
480 VOLTS
60 Hz

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

	Voltages	120, 240, 277 and 345 volts				
	Max. Current Amperes	8	25	50	100	200
*	Full Scale (KW)	3.0	9	18	36	72
*	Multiplier	2	7.5	15	30	60
	Scale	1500 watts and 1.5 KW on 8 ampere meter 1200 watts and 1.2 KW on all other ratings				

2 1/2-Element Delta for use on 3-phase 4-wire delta service

	Voltage	240				
	Max. Current Amperes	8	25	50	100	200
*	Full Scale (KW)	3.0	10	20	40	80
*	Multiplier	2.0	10	20	40	80
	Scale	1500 watts and 1.5 KW on 8 ampere meter 1000 watts and 1.0 KW on all other ratings				

Type WYF

		2 Element		2 1/2 Element Wye	
	Voltages	120,240,277,345,480,600		120,240,277,345	
	Nominal Amperes	5		5	
	Maximum Amperes	8		8	
*	Full Scale (KW)	1.5		3	
*	Multiplier	1		2	
	Scale	1500 watts		1500 watts	
	Single Phase Test Series	500 watts	1000	500 watts	1000
	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, except on 2 1/2 element delta where voltage is 240. For other voltages multiply by the voltage ratio (for 277 volts use 2.5).

Description

The thermal element in the type "WY-" polyphase thermal KW demand meter is based on the design presently used in the demand section of the type TJ modified to suit the polyphase application.

The two matched bimetal helices are connected together on a common shaft, each coil mounted in a high temperature moulded phenolic case and fixed rigidly in its separate compartment of the aluminum die cast thermal element. This arrangement provides a thermally symmetrical stable element. The same type of bimetal is used in all elements, and in each of the moulded cases the two heaters are assembled into a thin stainless steel pancake.

The zero adjustment to the right of the element and the full load adjustment to the left of the element apply a corrective force to the bimetal coils through a helical spring. The range of the zero adjustment is ± 3% while the full load adjustment has a range of approximately ± 10%. In conjunction with the full load adjustment is a helical bimetal temperature compensator. The bimetal is the same material as used on the TJ thermal element compensator and provides approximately 3-1/2% compensation.

The adjustment springs of the "red" pointer are connected to a thin stainless steel band which works over a drum thus providing a linear action and reducing the friction in the movement.

Toroidal current transformers are used throughout the entire family of meters and are manufactured of the highest grade of grain oriented steel.

The potential transformers are miniature type using grain oriented silicon steel with moulded primary coils to improve the insulation level.

All the KW demand elements have eight heaters, four for each electrical element. Two heaters are on each side of each bimetal coil, one heater for each electrical element, and they are connected so that regardless of the location of the bimetal coil there is a uniform heat flow minimizing the necessity of any balance shunts.

The electrical circuits are the same as those presently used in the ED-30 and the WD-4.

Generally, transformer rated meters will use the 1500 watt or 1.5 KW scale and the self-contained meters will use the 1000 watt, 1200 watt, 1.0 KW or 1.2 KW scales.

NOTE: The test links as shown on the illustration of the Type WYS are incorrect. In production, the links will be connected to the blades.

Approval granted to:

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Reference: SL-100-93A