CANADA

DEPARTMENT OF TRADE AND COMMERCE

STANDARDS BRANCH

E-10

OTTAWA May 27, 1965.

NOTICE OF APPROVAL

FOR

SANGAMO TYPES "VA4S", "VA4P", "VA4AP" and "VA4F" THERMAL VOLT-AMPERE DEMAND METERS

Apparatus

Type VA4S and VA4AP

Service	3-phase 3-wire (2-Element)				
Voltages	115, 120, 230, 240, 460, 480, 575 and 600				
Maximum Amperes	7.5	15.0	37.5	75	150
*Full Scale KVA	1.5	3.0	7.5	15	30
Scale Marking VA	1500 - all ratings				
*Multiplier	1	2	5	10	20
Single Phase Test Constant	3/4 - all ratings				
Response Period 90%	10 and 16 minutes - all ratings				
Test Period 99%	20 and 32 minutes - all ratings				
Frequency	60 cycles - all ratings				

Type VA4S

Service	3-phase 4-wire Y (2½-Element Y)				
Voltages	120, 240 and 345				
Maximum Amperes	8.5	20	40	85	200
*Full Scale KVA	3.0	7.5	15	30	75
Scale Marking VA	1500 - all ratings				
*Multiplier	2	5	10	20	50
Single Phase Test Constant	1 - all ratings				
Response Period 90%	10 and 16 minutes - all ratings				
Test Period 99%	20 and 32 minutes - all ratings				
Frequency	60 cycles - all ratings				

Type VA4P

Service	3-phase 4-wire Y (2½-Element Y)			
Voltages	120, 240 and 345			
Maximum Amperes	8.5	20	40	85
*Full Scale KVA	3.0	7.5	15	30
Scale Marking VA	1500 - all ratings.			
*Multiplier	2	5	10	20
Single Phase Test Constant	1 - all ratings			

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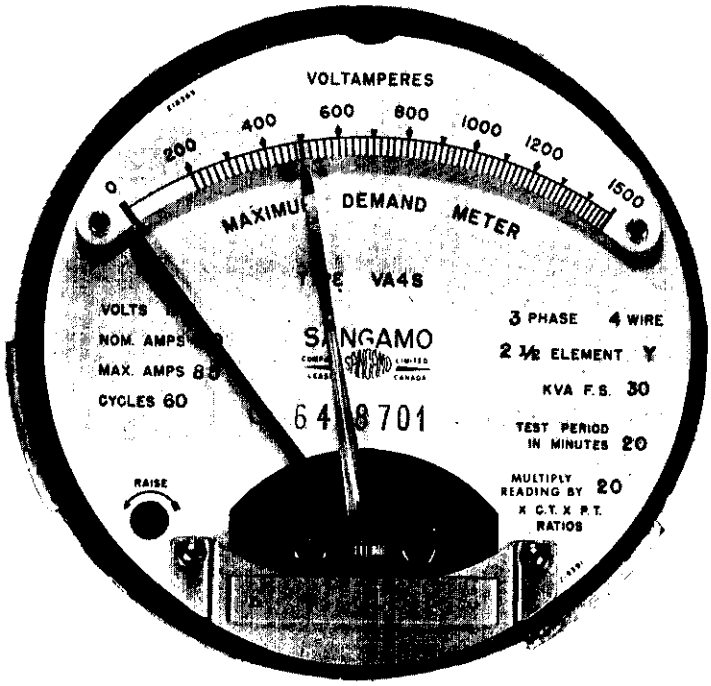
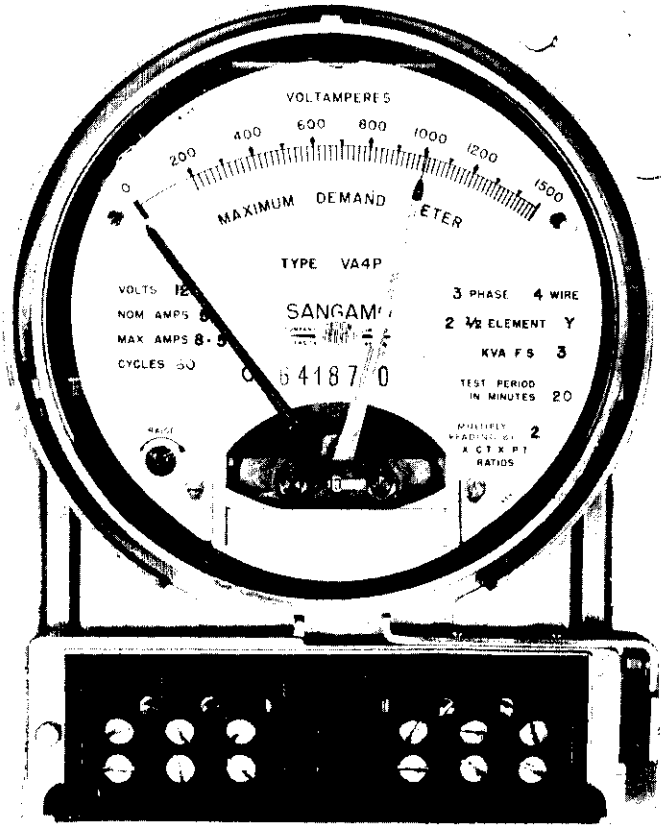
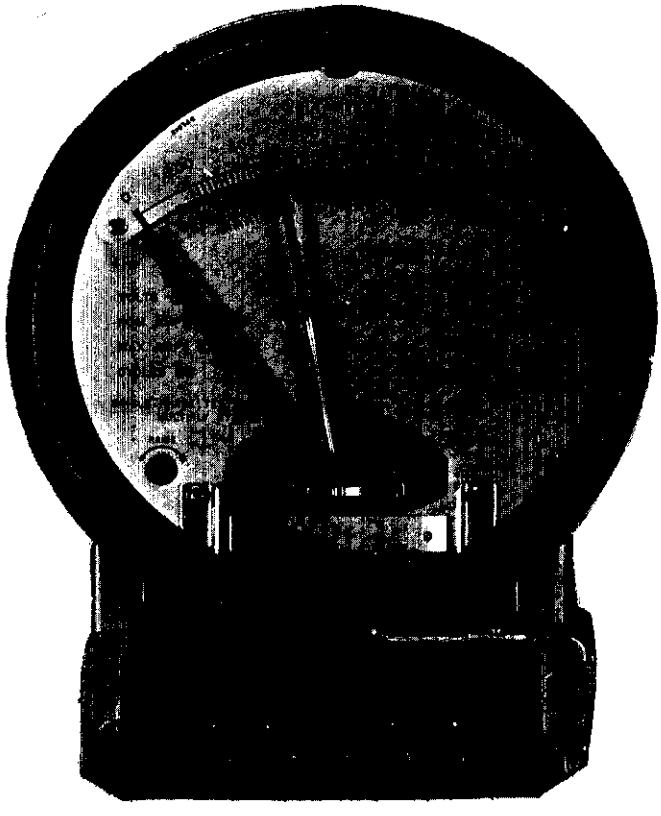

VOLTAMPERES
0
200
400
600
800
1000
1200
1500
MAXIMUM DEMAND METER
TYPE VA4S
VOLTS
NOM. AMPS
MAX. AMPS 8.5
CYCLES 60
SANGAMO
6 4 8701
3 PHASE 4 WIRE
2 ½ ELEMENT Y
KVA F.S. 30
TEST PERIOD IN MINUTES 20
MULTIPLY READING BY 20 X C.T. X P.T. RATIOS
RAISE


VOLTAMPERES
0
200
400
600
800
1000
1200
1500
MAXIMUM DEMAND METER
TYPE VA4P
VOLTS
NOM. AMPS
MAX. AMPS 8.5
CYCLES 60
SANGAMO
6 4187 0
3 PHASE 4 WIRE
2 ½ ELEMENT Y
KVA F.S. 3
TEST PERIOD IN MINUTES 20
MULTIPLY READING BY 2 X C.T. X P.T. RATIOS


VOLTAMPERES
0
200
400
600
800
1000
1200
1500
SANGAMO VA4F
MAX. AMPS 7.5
6 444 695
SINGLE PHASE TEST MULTIPLY BY 0.75
RAISE



Type VA4P (Cont'd.)

Response Period 90%	10 and 16 minutes - all ratings.
Test Period 99%	20 and 32 minutes - all ratings.
Frequency	60 cycles - all ratings.

Type VA4F

Service	3-phase 3-wire (2-Element)		3-phase 4-wire Y (2½-Element Y)	
Voltage	115 and 120		120	
Full Scale KVA	1.5	1.0	3.0	2.0
Scale Marking VA	1500	1000	1500	1000
Nominal Amperes	5	5	5	5
Maximum Amperes	7.5	5	8.5	6.0
Multiplier	1	1	2	2
Single Phase Test Constant	3/4	3/4	1	1
Response Period 90%	10 and 16 minutes - all ratings			
Test Period 99%	20 and 32 minutes - all ratings			
Frequency	60 cycles - all ratings			

* Full scale VA and multiplier are given for 115 or 120 volt ratings. For other voltages, multiply by the voltage ratio.

Description

The type "VA4" is the demand section of the type 4L3 and is supplied in two "bottom connect" enclosures and one socket base enclosure. The type "VA4F" has the demand element in a case for flush mounting on a switchboard.

Like the 4L3 it is a rectifier type and while it is independent of power factor, its reading is proportional to the average values of the current and voltage waves. Therefore, when verifying these meters; particularly if a wattmeter or rotating standard whose readings are proportional to the rms values is used; the test equipment should be one known to produce current and voltage waves of low harmonic content.

When testing on single phase, voltage must be applied to both potential coils. The 2-element ratings have a single phase test constant of 3/4, so that the test load must be reduced by this factor to obtain the equivalent polyphase reading; e.g., the single phase test load for a reading of 1.0 KVA will be .75 KVA or .375 KVA applied to both elements in series. The 2½-element Y has three identical current coils, the single phase test constant is 1, and equal loads applied to each of the current coils in turn will produce the same pointer indication.

Approval granted to: The Sangamo Company Limited,
Leaside, Toronto 17, Ontario.

W.J.S. Fraser,
Chief, Standards Laboratory,
Standards Branch.

K. Cryer,
Chief, Electricity & Gas Division,
Standards Branch.

Ref: SL-100-83A