Consumer and Corporate Affairs | Consommation et corporations
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NOTICE OF APPROVAL
AVIS D'APPROBATION

E-158

Ottawa, September 21, 1977

LANDIS & GYR TYPES "GAB1", "GAB2", "GAB3" IMPULSE OPERATED SUMMATORS WITH MAXIMUM DEMAND ATTACHMENTS

Rating of Apparatus

*Maximum impulse rate per input channel	s1 5 impulses per second s2 10 polarity changes per second
Supply voltage	115 volts 60 Hz
Demand intervals	10, 15, 20, 30 and 60 minutes
Nominal duration of timing pulse	1%±0.3% of demand period
Transmitter voltage	115 volts ±20% 60 Hz
Maximum resistance of transmission line	400 ohms
Ambient temperature	0 to 50°C

*Variations of input circuit are given separately under "input circuits".

The basic type configurations:

GAB1 - for 2 inputs, with one totalizing register and 0 or 1 retransmitting contact.

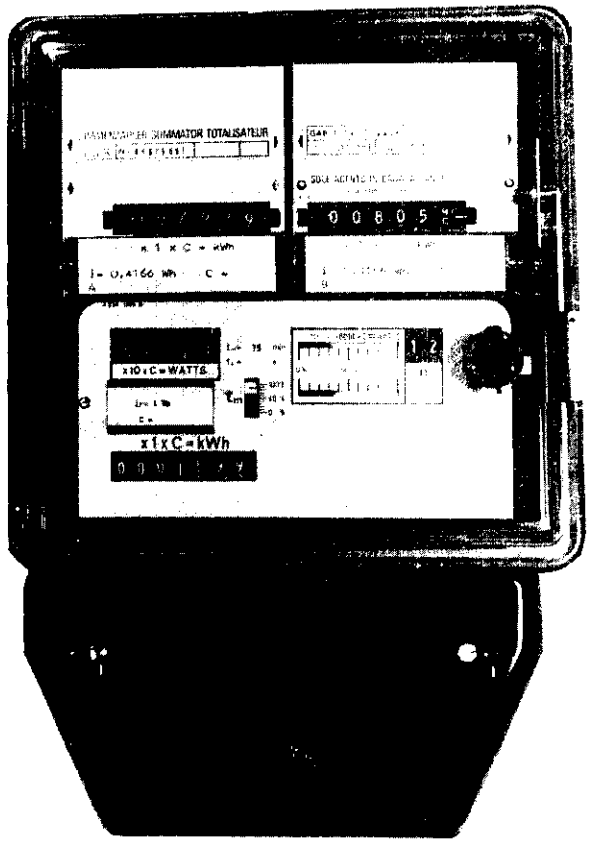
GAB2 - for 2 to 8 inputs, with 1 totalizing register and 0 or 1 retransmitting contact.

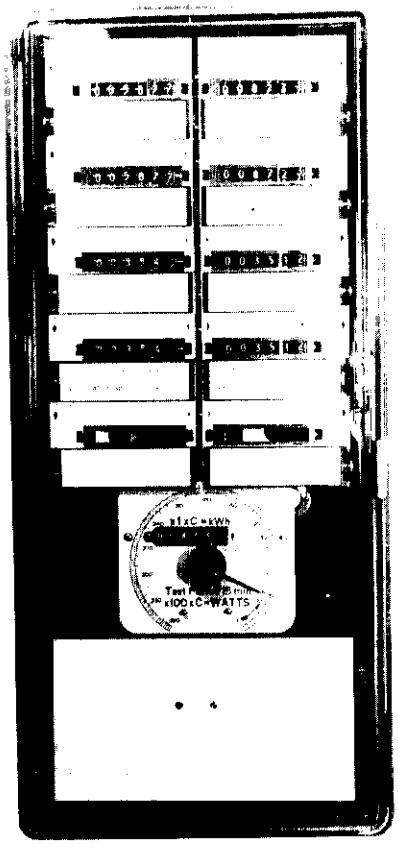
GAB3 - for 2 to 8 inputs with 1 or 2 totalizing registers and 0 to 2 retransmitting contacts. With maximum demand indicator.

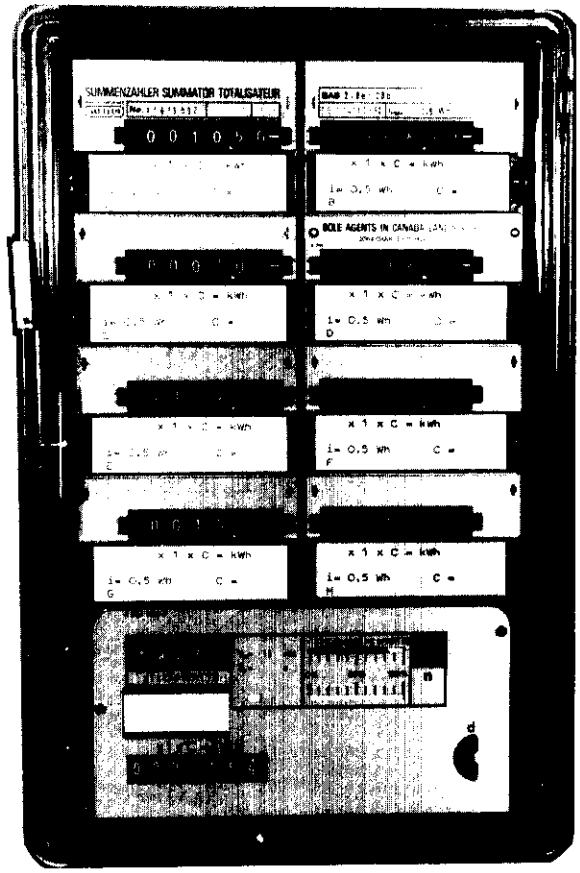
Type designations for inputs:

.1 to .8 number of inputs, all positive.
(4-2) number of positive and negative input units respectively.

Approved suffixes "my" appear as part of the type designation.


SUMMATOR TOTALISATEUR
x10xC=WATTS
x1xC=kWh


x1xC=kWh
x100xC=WATTS


SUMMENZAHLER SUMMATOR TOTALISATEUR
BOLE AGENTS IN CANADA

e single tariff register for partial sums or totals

d double tariff register

em maximum demand indicator with single tariff register

dm maximum demand indicator with double tariff register

em.. cumulative maximum demand indicator with single tariff register

dm.. cumulative maximum demand indicator with double tariff register

Retransmitting contacts for sub-total and totalizing mechanixms:

u changeover contact 1:1

r changeover impulsing contact 80 ms

w changeover contact 1:1 with built-in diodes for half-wave a.c.

Description

The type "GAB" summator is an impulse-controlled telecounting equipment and is similar in construction and operation to the Landis & Gyr type "GAA" pulse operated summators approved by Notice of Approval E-126 of March 8, 1974.

In addition the new series of summators incorporates in the same enclosure a type m21 to m25 cumulative maximum demand register which received approval under Notice of Approval E-135 of February 18, 1976.

The summator can add or subtract from 2 to 8 electrical pulse inputs by differential summation.

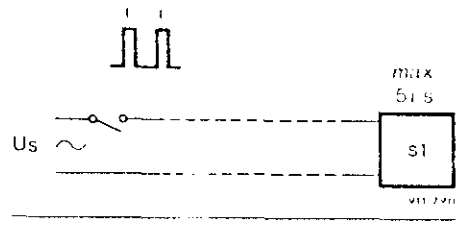
The basic requirement for successful operation is that each pulse of an input circuit should represent an equal and definite quantity of electrical energy, but this energy constant may differ for each input circuit.

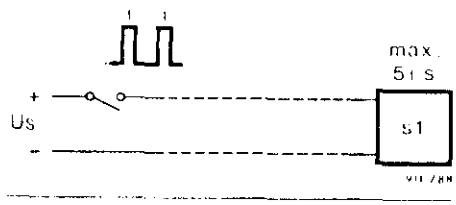
Each measured value is assigned to a receiving device in the summator. This device comprises a stepping motor, variable ratio wheels coupling gears and a register. The stepping motor

INPUT CIRCUITS

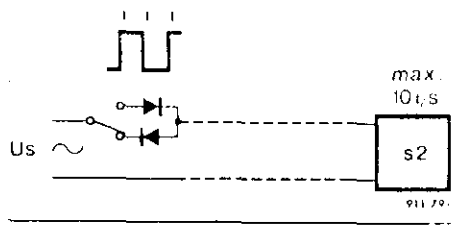
i = impulse
Us = Transmitter voltage

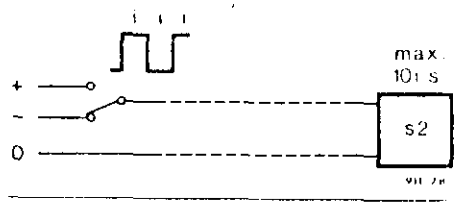
s1 SINGLE-CURRENT INPUT CIRCUITS





s2 DOUBLE-CURRENT INPUT CIRCUITS





RETRANSMITTING DEVICE

GENERAL DATA

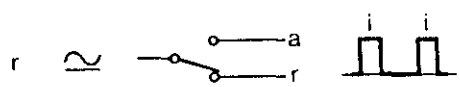
Mercury-wetted change-over contact, galvanically separated from the other circuits, non-overlapping change-over contacts, bounce-free.
Mounting note: vertical ±30°

Contact loading:

	u, r	w
Contact type		
Switching capacity	50 VA	50 VA
a.c. voltage	250 V~	250 V~
d.c. voltage	250 V—	—
Continuous and breaking capacity	1 A	0.5 A
Contact closure limits	10 A 100 ms	10 A 10 ms

Contact protection (RC circuit) is *built-in* for resistive or capacitive loads up to a max. 120 mA. For larger, or inductive, loads additional spark – quenching is necessary in the keyed equipment.

WITH CHANGEOVER IMPULSE CONTACT 80 ms



Impulse duration 80 ms
(tolerance approx. 70...100 ms)

Contact side a = make contact (impulse)

Contact side r = break contact (pause)

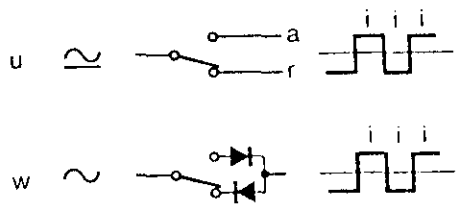
Output impulse frequency 5 i/s

Observe restrictions with the ratio of the impulse values!

Supply for the impulse stage:
Consumption approx. 1 W

Nominal voltages:
AC 100...127 V or 200...240 V
DC 100...110 V

WITH CHANGEOVER CONTACT 1:1



Ratio of contact positions a : r = 1:1, a continuous contact is given on a or r when the contact mechanism is stationary.

Output impulse frequency 10 i/s max. that is, maximum 10 pole changes/sec.

Observe restrictions with the ratio of the impulse values!

No auxiliary supply is necessary for the retransmitter with changeover contact u or half-wave output contact w.

converts the measured impulse into a rotary motion which drives, via the variable ratio wheels, the summation gearing, the totalizing register, the maximum demand and the retransmitting contacts, without an auxiliary voltage supply.

Each input unit is designed as a plug-in module and comprises the stepping motor, with the pertinent circuitry, the variable ratio gears for matching impulse values, the coupling wheel for the summation mechanism and the check register with the various ratios.

By plugging in the input unit, it is coupled electrically to the input terminals, and mechanically to the summation mechanism.

If an input unit is removed, the relevant differential side in the summator mechanism is automatically blocked. This does not affect the operation of the modules still in place.

Each summator may be used with s1, s2 or mixed inputs.

Input Circuits

The stepping motors convert each input impulse into an exactly defined step. There are two different types:

"s1" Single-current stepping motor steps halfway with the receipt of each impulse. During the impulse interval, the motor completes the other half of the step.

"s2" Double-current stepping motor makes one half-step with each impulse. A positive going impulse must be followed by an equivalent negative going impulse and vice-versa.

The summators may be equipped with different types of approved tariff attachments combined with maximum demand indicators or cumulative maximum demand registers.

The cumulative maximum demand registers m21 to m25 with inherent error of $\leq$ 0.3% provide the following data:

a) Cumulative maximum demand on 5 digit register

b) Indication of the highest average demand value per reading period

c) Number of completed resetting operations on 2 digit register

d) Indication of average demand for demand interval in progress

e) Indication of time elapsed in the demand interval

f) Indication of maximum demand coupling condition

g) Indication of days elapsed.

Retransmitter

A retransmitter can be driven parallel to each partial sum register and each totalizing or result register respectively. It contains a mercury-wetted change-over reed contact which is operated directly by means of a rotating permanent magnet. One impulse corresponds to a change-over from closed to open contact position or vice-versa.

The summator type "GAB" is supplied in a universal case which can be used optionally, for either flush or projection mounting and offers also plug-in connections.

A wire type sealing arrangement is provided at the back of the summator.

The front plastic door has a simple closure fitted with a simple inset lock.

Approval granted to:

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