



Department of consumer and corporate affairs / Ministère de la consommation et des corporations



STANDARDS BRANCH - DIRECTION DES NORMES

## NOTICE OF APPROVAL

E-115

OTTAWA November 25, 1972.

LANDIS & GYR TYPE "FEC3" IMPULSE RECEIVER AND TYPE  
FEC3/VA/FEC3 TELE-TRIVECTOR

RECORDERS

Input Pulses

Maximum Continuous	90 per minute
Short Periods	120 per minute
Duration	0.06 second min. to continuous
Interval Between Pulses	0.2 seconds min.
Storage	42 impulses
Voltage	120 volts 60 Hz from external source

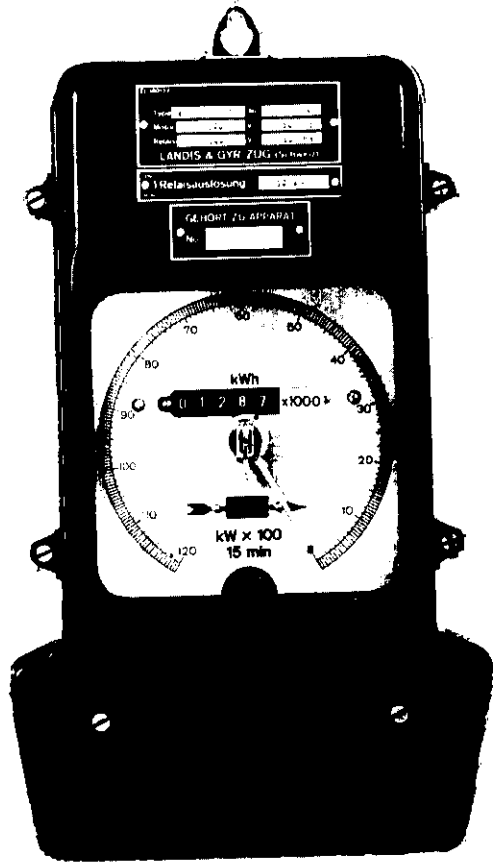
Output Pulses

Maximum Rate	1 pulse per second
Type	SPST dry contacts
Duration	0.06 to 0.09 seconds
Conversion Ratios <sup>(1)</sup>	1:1 to 60:1
Contact Capacity	60 milliamperes at 120 volts
Test Period	15, 20, 30 and 60 minutes

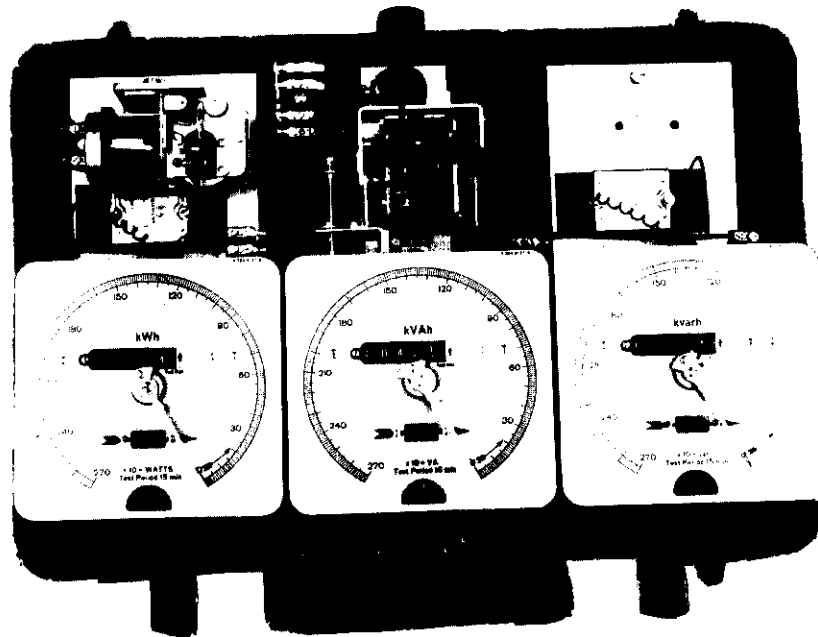
Approved Attachments

e	single cyclometer register
m	maximum demand scale
r	re-transmitting contact
ql	stop relay
ye	internal timing motor
d	double two-rate cyclometer register
Power Supply	120 volts 60Hz

(1) The conversion ratio may appear on the nameplate as "Ki ratio factor = --". This ratio which may have any value between 1 and 60 is the multiplier that is to be applied to the input impulse value to obtain the value of each output impulse in the same units.



TYPE FEC 3



TYPE FEC 3/VA/FEC 3

DESCRIPTION

These impulse receivers are available as single units as type FEC3, and as double units combined with a Trivectoring mechanism in a common case as FEC3/VA/FEC3. Both types are illustrated on page 2 of this notice.

In both cases, the impulses to operate them originate from an external 115 volt 60Hz supply in series with SPST contact devices such as types "r4" and "r6" installed on integrating meters.

These receivers incorporate a storage device which can store impulses temporarily when, for instance, more impulses arrive than can be handled or retransmitted, as may occur during times of peak loading.

Storage can be forced by the operation of the "stop relay "q1" which prevents impulses from being processed or retransmitted when it is energized.

The q1 relay would be operated by the q6 function of an mq6 contact on a time switch so that impulses arriving during the reset period are stored and then released during the following demand period.

Type FEC3 units can also be used as a buffer memory, for impulse receivers without memory, in which case q1 is always present and the units would normally be supplied without register or demand scale having a plain case.

Type FEC3 units can also be used as an impulse value and impulse rate converter. A number of input/output impulse ratios are available ranging from 1 input pulse to 1 output pulse up to 60 input pulses to 1 output pulse. The value of each output pulse in terms of the value of each input pulse is proportional to the ratio.

The values of each input and output pulse will be marked on the nameplate as "Ki In", "Ki Out".

One particular ratio, 100:99 will be mentioned later.

Single units are available with or without a demand scale as types FEC3em and FEC3 respectively and both can be equipped with a stop relay "q1".

Receivers FEC3em have normal demand pointer gearing where the pointer advance is corrected for the reset time.

Receivers FEC3emql have non-corrected demand pointer gearing and the operation of the ql stop relay causes pulses arriving during the reset period to be stored and then released during the following demand period.

The Tele Trivector uses two impulse receivers and a Trivectoring mechanism.

One impulse receiver is fed from the transmitting contacts on a Summator or watt-hour meter transmitting watt-hours per impulse, and the other is fed from the transmitting contacts on a Summator or var-hour meter transmitting var-hours per impulse.

The retransmitting contact "r" is fitted to the VA section only and the "ql" relay is not installed.

As mentioned earlier the ratio 100:99 is particularly useful in connection with the Trivectoring mechanism. This mechanism produces an output that is slightly higher by approximately 1% than the value computed from the formula  $Kvah = \sqrt{Kwh^2 + Kvarh^2}$ . The ratio 100:99 reduces the number of Kvah pulses by approximately this amount so that if the output pulses of the Tele-Trivector are applied, e.g., to a Maxiprint, the readings are closer to the true value.

Of course, in the particular case, the ratio of input to output pulses of 100:99 or 1.0101% is not taken into account.

A paper diagram pasted inside the terminal cover shows the connections to the various terminals.

In accord with a change in this section of Specification No. 2 covering Approval of Type of Demand Elements, FEC3 Impulse Receivers and FEC3/VA/FEC3 Tele Trivectors are approved with fully divided demand scales as shown on page 2.

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