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NOTICE OF APPROVAL
AVIS D'APPROBATION

E-143

Ottawa, August 3, 1976

LANDIS & GYR "DATAGYR" MAGNETIC TAPE RECORDERS, NEA1 AND NEB1

Maximum Impulse Frequency: S1 Unipolar Impulses 5 imp/s
S2 Double Current Operation 10 imp/s

Minimum Time Between Pulses: 70 ms.

Minimum Impulse Length: 70 ms.

Nominal D.C. Voltages: ±24, ±48 or ±60 V ±20%

A.C. Voltage Supply: (adjustable using solder bridges) 100-120 or 200-240 V ±15%

Current Consumption: Approx. 5 mA per meter reading

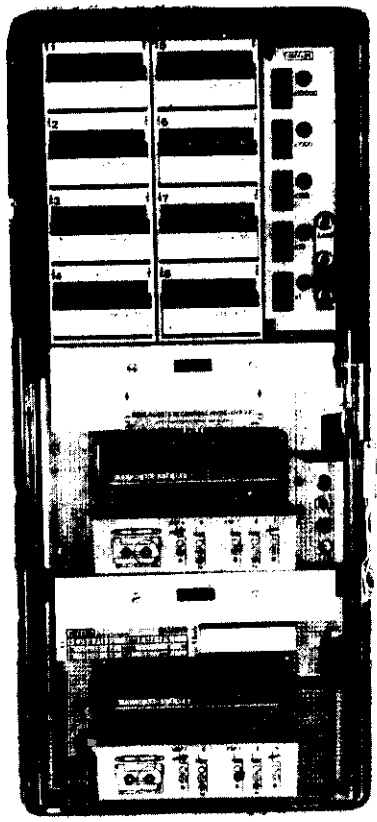
Number of Input Channels: NEA1 - 1 or 2
NEB1 - 1 to 8

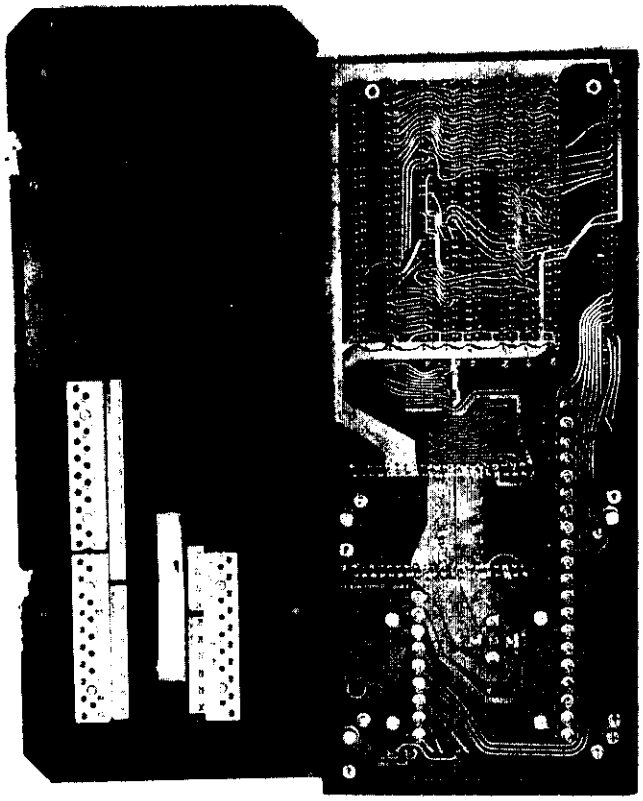
Cassette Capacity: (with 85 m useful length)

NEB1 Recording	Capacity in Days For Registration Periods (min) of:				
	5	10	15	30	60
4 words	48	97	146	292	544
8 words	24	49	74	149	298
12 words	16	33	50	100	195
16 words	12	25	37	75	151

1 word = 1 meter value or 1 fixed value
2 words are required for the registration period counter, when fitted.
A total of 8 meter values, 6 fixed values and the registration period number are possible.

NEB1.8sleub





Cassette Capacity: (with 85 m useful length)

NEA1 Recording	Capacity in Days For Registration Periods (min) of:				
	5	10	15	30	60
1 meter value	168	336	484	863	1419
2 meter values	93	182	279	522	924

Description

The Magnetic Tape Recorders, Datagyr NEA1 and NEB1 are used to receive impulses from 1 to 8 meters and to record the corresponding meter status, integrated during the registration period. They are employed particularly for average values and the determination of maximum demand, for billing purposes or for statistical purposes.

As a data carrier, the compact data cassette is used according to the recommendations of the European Computer Manufacturers Association, Standard 34. Cassettes which have been used to record data using the magnetic tape recorder can be read in any evaluation centre using a translator. Thus the information can be fed directly to the computer or recorded on computer-compatible magnetic tape using another unit. The essential features of the NEA1 and NEB1 are:

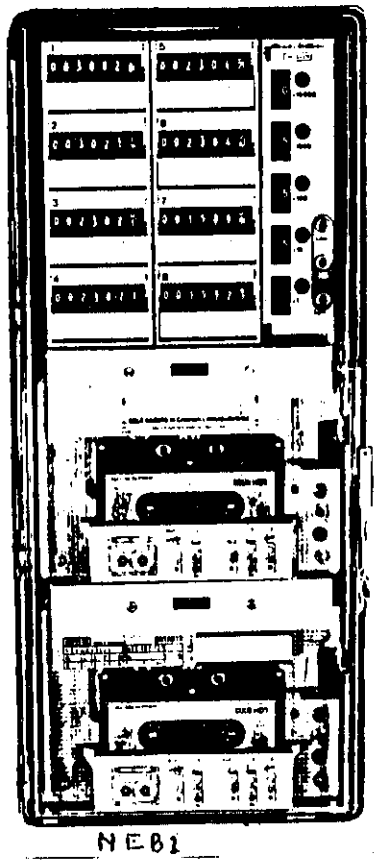
Counting (average load values) and recording of 1 to 8 meter values in one equipment.
Input circuits for uni-polar or bi-polar impulse operation.
Check counter: the magnetic tape recorder is especially suitable for billing purposes.
Release magnet for freeing the interlock after the EOF-recording when changing cassettes.
Modular Construction.
The unit may be fitted into position using its own connection board.
The same housing is suitable for flush or projection switchboard mounting.
Long life expectancy due to the use of integrated circuits and simple mechanics.

Magnetic Tape Recorder, Datagyr NEA1

Execution for 1 or 2 meter readings only.
Cassettes recorded using the NEA1 recorder cannot be evaluated fully automatically. The meter identification number, known data and start and end times of the registration period are noted on the cassette and given manually for evaluation.

Magnetic Tape Recorder, Datagyr NEB1

Capable of handling a maximum of 8 meter readings.



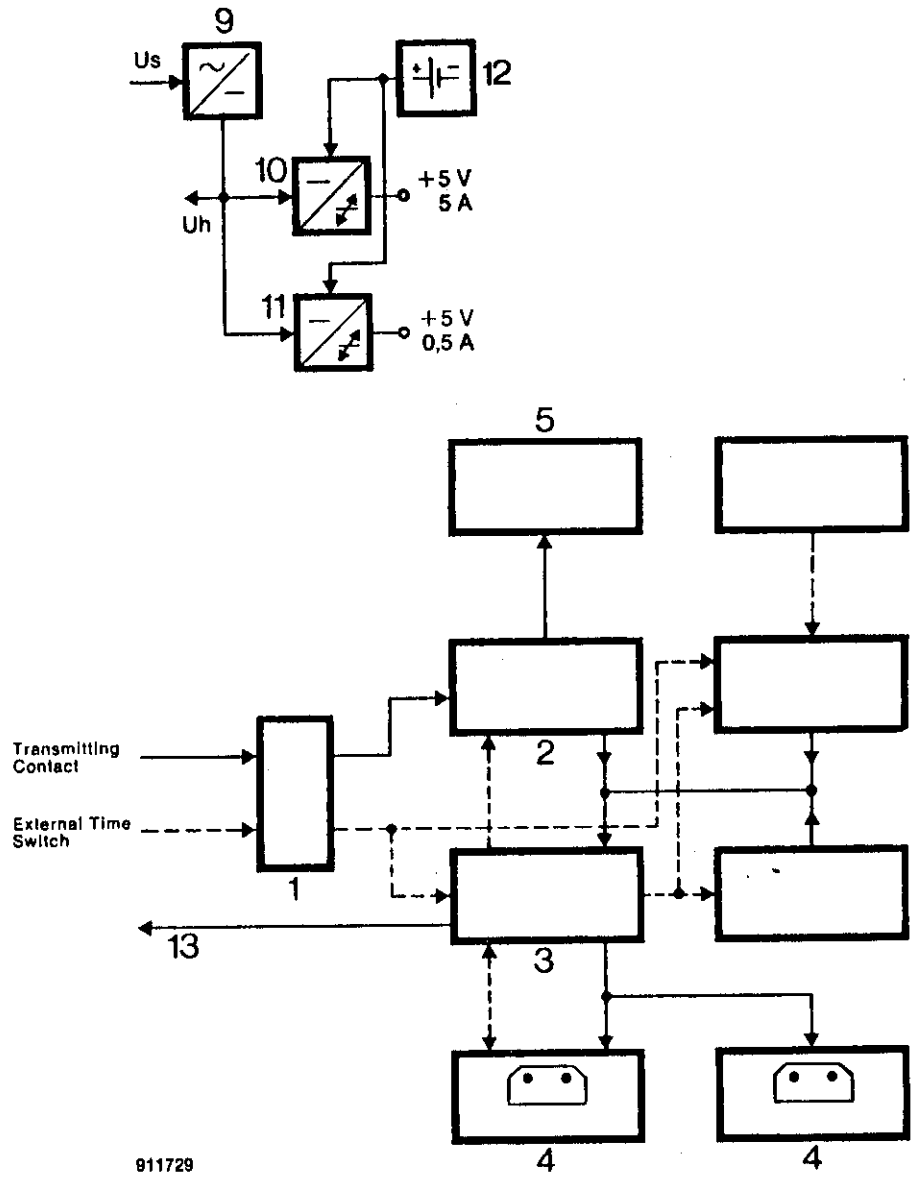


Fig. 2 Block Schematic NEB1

1 Input circuit
2 Coder (max. 8)
3 Control logic
4 Drive mechanism (2 required or duplication)
5 Check counter
6 Fixed values (max. 6)
7 Registration period counter
8 Electronic timer
9 Mains supply unit
10 Switching regulator + 5 V, 5 A
11 Switching regulator + 5 V, 0.5 A
12 Emergency supply (Battery pack)
13 Electronic Data output

——▶ Information flow path

- - - ▶ Control path

Optional Items include:

Fixed values for meter position number and known data.
Registration period counter.
Electronic timer for controlling the registration period, with reserve facility.
Second drive mechanism for duplicate cassette.
Electronic data output, for transmission of data via remote supervisory control equipment, and/or a digital printer, etc.

Note: All cassettes on which the fixed values and registration period numbers are recorded using the magnetic tape recorder NEB1 may be evaluated fully automatically.

The electronic sub-assemblies of the Magnetic Tape Recorders NEA1 and NEB1 are manufactured as plug-in boards. The connections between individual items on the boards are made using printed circuitry.

The drive mechanism for the magnetic tape transport is a robust, mechanically simple, maintenance-free assembly. The cassette is loaded and changed from the front of the unit. The cassette holder contains a guide which prevents the cassette from moving sideways while loading. The holder displays in symbolic form how the unit works.

The check counters are built, together with their stepping-motors, as integral units, which are also accessible from the front. The drive mechanisms and the check counters are identical in both equipment types. In the NEB1 they are found on a swivelling frame; in this way the plug-in printed circuit boards are accessible from the front. The front doors have a simple closing device which can be fitted, if required, with a mortice lock.

The magnetic tape recorders NEA1 and NEB1 are provided in a housing which may be supplied in either flush or projection mounting form, as desired. The magnetic tape recorder is capable of being completely sealed.

Note: No one should attempt to install, operate or verify these recorders without studying the Landis & Gyr information pamphlet and descriptive literature F36/E-CH235a. It is recommended that the officer in charge of the electrical approvals laboratory be contacted for detailed information re verification methods before proceeding.

NEA1 ▲

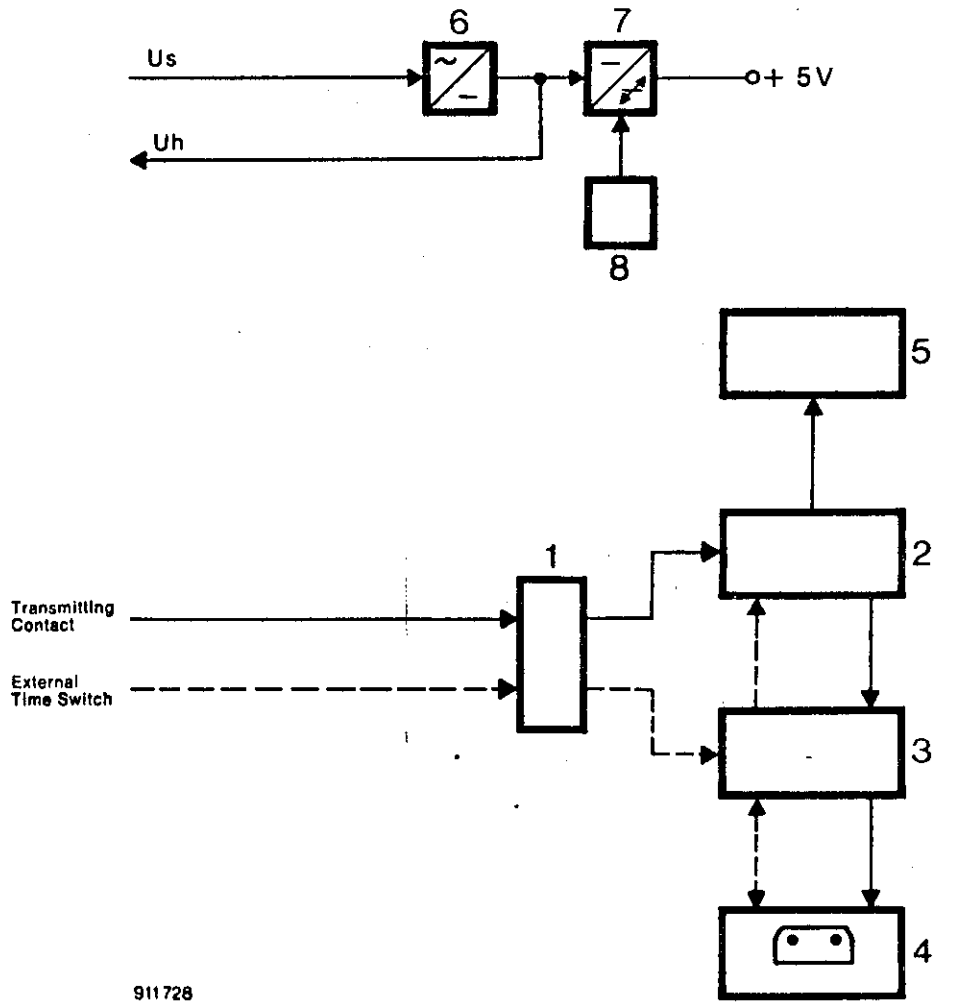


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Fig. 1 Block Schematic NEA1

1 Input circuit
2 Coder (1-2)
3 Control logic
4 Drive mechanism
5 Check counter
6 Mains supply unit
7 Switching regulator
8 Emergency supply (Capacitors or Battery pack)

——► Information flow path
- - - ► Control path

Summary of Types:

NEA1	Magnetic tape recorder for 1 or 2 meter readings.
.1 or .2	Number of meters read.
s1	Meter reading inputs for uni-polar impulses.
s2	Meter reading inputs for bi-polar impulses.
e	Single tariff check counter for meter readings.
b1	Battery pack, connection drawing No.1 (normal) external supply for control functions SP + R and d.
b2	Battery pack, connection drawing No.2 (as required). Supply for control functions SP + R and d provided by NEA1.

Example of a complete type designation: NEA1.2s1eb1

Magnetic tape recorder for two meter inputs, monopolar impulse operation, single tariff check counter, battery pack, connection drawing No.1.

d	Day mark.

Accessory which does not show in the type number -- Built-in door lock.

NEB1	Magnetic tape recorder for a maximum of 8 meter inputs.
.2, .4, .6, .8	Number of inputs for meter readings.
s1	Meter reading inputs for uni-polar impulses.
s2	Meter reading inputs for bi-polar impulses.
e	Single tariff check counter.
b1	Battery pack, connection drawing No.1 (normal); external supply for control functions SP + R and d.
b2	Battery pack, connection drawing No.2 (as required). Supply for control functions SP + R and d provided by NEB1.
u	Control of SP + R via internal electronic timer.
ub	Same as u but with battery connections for the electronic timer.
d	Day mark.

Example of a complete type designation: NEB1.4s1eub

Magnetic tape recorder for 4 meter readings.
Inputs for uni-polar impulses.
Single tariff check counters.
Control of SP + R via internal electronic clock.
Battery connections for the electronic clock.

TAPE STORAGE AND READING INFORMATION

RECORDING OF SUPPLY VOLTAGE FAILURES

In order that, during tape evaluation, it may be known whether or not a supply voltage failure has occurred, the following operations are carried out, as soon as the supply has been restored:

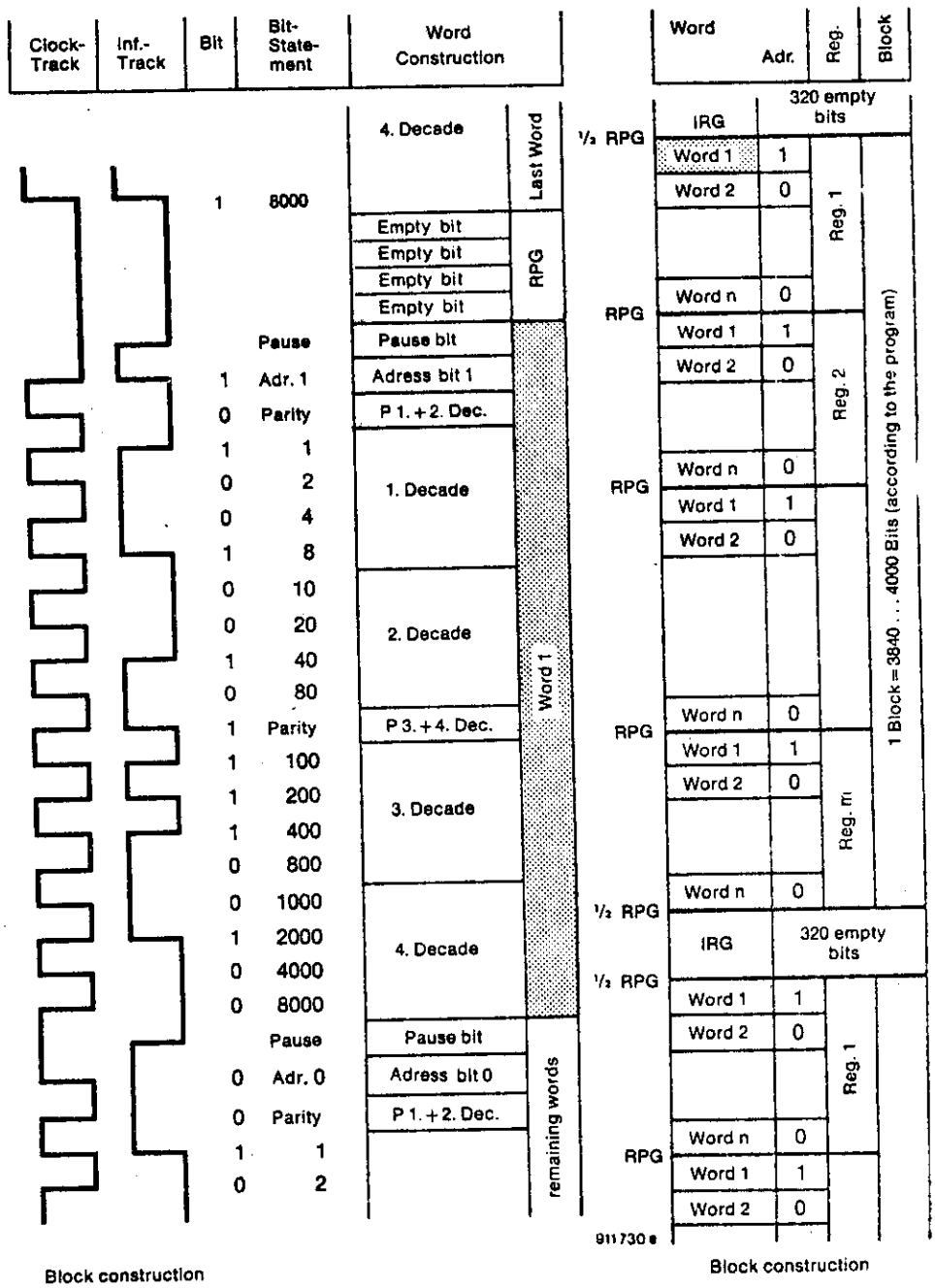
- Recording of an IRG
- Meter readings fixed at 9999
- Recording of 9999 for all meters on the next "record" order

USABLE TAPE LENGTH

Usable tape length per word = 1/20 inch = 1.27 mm

Usable tape length in metres per day, example:

Recording of	Registration period (min)				
	5	10	15	30	60
1 Word	0.50	0.25	0.18	0.10	0.06
2 Words	0.91	0.47	0.30	0.16	0.09
4 Words	1.74	0.87	0.58	0.29	0.16
8 Words	3.41	1.75	1.14	0.57	0.28
12 Words	5.08	2.54	1.69	0.85	0.43
16 Words	6.75	3.37	2.25	1.12	0.56



In the above example, the first word represents a meter reading (coder status) or a fixed value of:
2000 + 700 + 40 + 9 = 2749

Fig. 3 Information Layout on the Magnetic Tape

Accessories which do not show in the type number --
Built-in door lock.
Larger battery.
Registration period counter (larger battery must be fitted).
Electronic timer (RPC and larger battery must be fitted).
Fixed values for check or test values and known data, etc.
Electronic data output.
Second drive mechanism (for duplicate cassette).

Approval granted to: Landis and Gyr Ltd.,
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Landis & Gyr Information Publication
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