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Усилители импульсов для расходомеров ТМ44 серии АРТМ44

 **tecfluid**

APTM44 AMPLIFIER USERS MANUAL

1 WORKING PRINCIPLE

The amplifier for the TM-44 is designed to avoid problems of electrical interferences in installations where the turbine is located at a big distance from the electronic control equipment.

The turbine pick-up generates very low level pulses (in the mV range). Given that the instrument input must detect these low level pulses, it is very susceptible to electrical interferences, especially to mains interferences. The probability of being affected by interferences increases with the length of the cable between the pick-up and the instrument.

The APTM44 amplifier converts the pulses from the turbine pick-up into two TTL level signals which are out of phase. This output signal is compatible with the pick-up input circuit of Tecfluid instruments and it appreciably increases the rejection of interferences which can be picked up by a long cable.

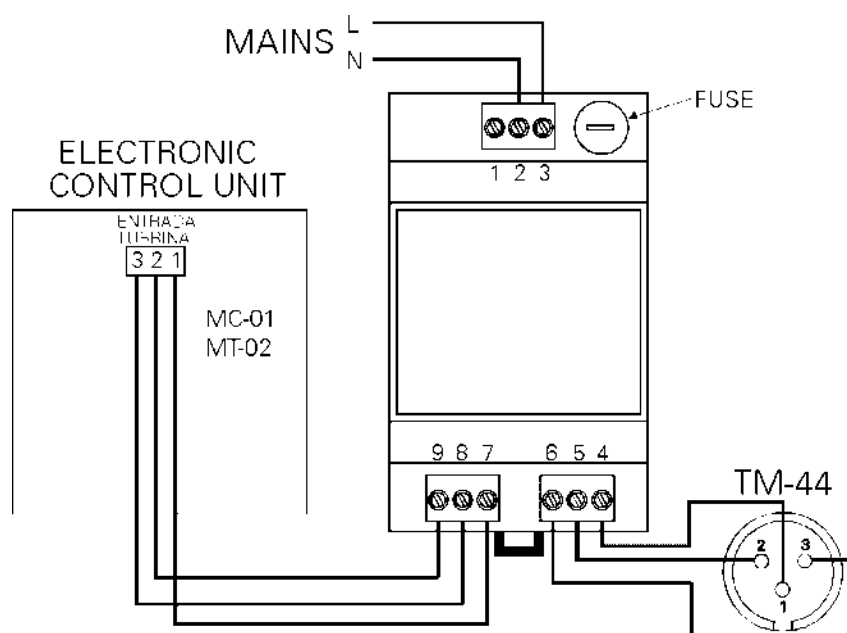
1.1 Limitations

The maximum frequency should be less than 1500 Hz.

1.2 Applications

- a). The elimination of interferences in long cables between the turbine and the control instrument.
- b). Signal conditioning for instruments not provided with a pick-up input. One of the TTL outputs can be used as an input for an industrial robot etc.
- c). For connecting two or more pick-up input instruments to the same turbine.

2 INSTALLATION



The APTM44 is housed in an IP40 plastic case for mounting inside an electrical control panel. The case has a clip for mounting on DIN 46 277 or DIN EN 50 022 rails.

The connection is by means of screw terminal blocks.

The APTM44 should be installed as close as possible to the turbine in order to reduce to a minimum the length of the pick-up cable.

IMPORTANT : In order to comply with the electrical safety requirements as per IEC 1010-1, the installation of the equipment must take into account the following:

- The equipment must be installed inside an electrical mounting cabinet to avoid the possibility that the operator may touch a connection terminal.
- A mains switch must be provided to disconnect the equipment. This switch must be marked as the disconnecting device for the equipment and be within easy reach of the operator.

2.1 Power Supply Connection

The power supply should be connected to terminals N° 2 and 3.

2.2 Pick-up Input Connection

These cables should not pass close to AC mains cables, given that these can produce interferences in the input and induce errors.

The input should be connected as follows:

APT M44 Terminal N°	Turbine Terminal N°
4 Shield	1 Shield
5 live	2 live
6 live	3 live

The "live" cables are the ends of the pick-up coil.

2.3 Pulse Output Connection

There are two ways of connecting the pulse output, depending on the type of input available:

2.3.1 Output for a Pick-up Input

This output produces two TTL level outputs which are opposed in phase.

APT M44 Terminal N°	MC-01 (TM-44) Terminal N°
7 Shield	1 Shield
8 live	2 or 3 live
9 live	3 or 2 live

2.3.2 Output for TTL Input

APT M44 Terminal N°	MT-02 (TTL) Terminal N°
7 Shield	1 Shield
8 live	2 live

3 WORKING

The APTM44 needs no adjusting to adapt to the pick-up or control instrument.

In the event that there are pulse outputs with no flow in the turbine, what is most probable is that the cables to the pick-up are too long or that they are too near mains cables.

4 TECHNICAL CHARACTERISTICS

4.1 Environment

The plastic case has protection as per IP 40 and the terminals as per IP 20.

The working temperature limits are 0 to 50°C

4.2 Mains supply

The standard mains voltage is 220 Vac 50/60 Hz. AC Mains voltages of 240 V, 110 V and 24 V 50/60 Hz. and 24 Vdc supply voltage are available on order.

The power consumption is less than 1 W.

The instrument is not supplied with a mains filter and in the exceptional cases that, due to high levels of mains interference, a mains filter is needed, this must be installed externally. Due to the low power consumption, almost any small mains filter will be adequate.

4.3 Pulse Output

The output pulse has a pulse width of 1 ms.

The TTL outputs are directly from a CMOS integrated circuit and have a load current of 1 mA maximum.

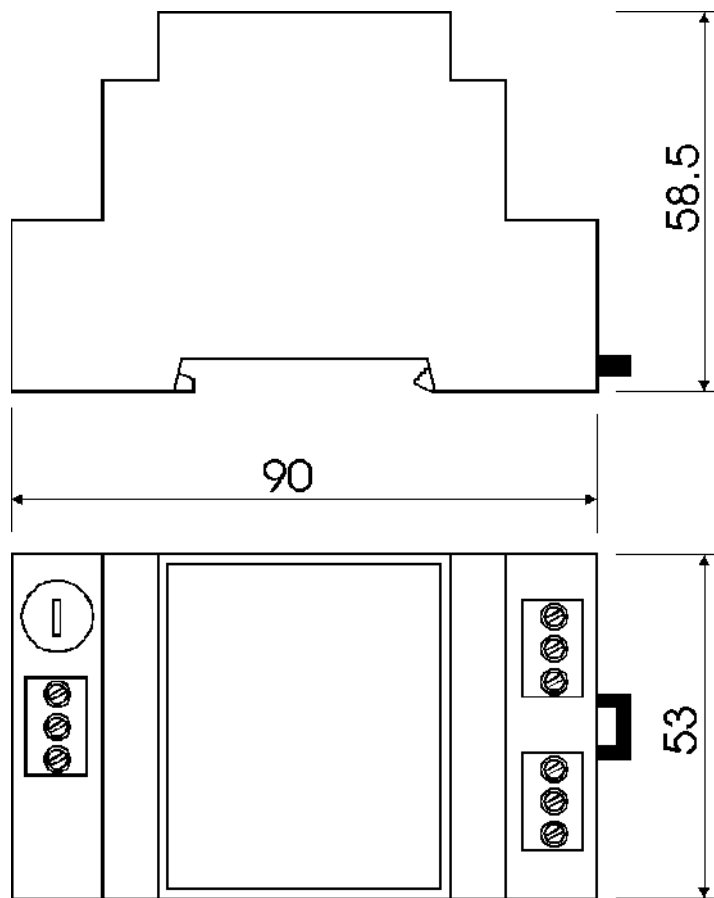
4.4 Pulse Input

The input is intended for an inductive pick-up coil.

The maximum input frequency is about 1500 Hz.

4.5 Dimensions

The weight of the instrument is about 200 g.



WARRANTY

Tecfluid S.A. GUARANTEES ALL ITS PRODUCTS FOR A PERIOD OF 12 MONTHS, maximum 18 months after consignment, against all defects in materials and workmanship.

This warranty does not cover failures which can be imputed to misuse, use in an application different to that specified in the order, the result of service or modification by un-authorized persons, bad handling or accident.

This warranty is limited to cover the repair or replacement defective parts which have not been damaged by misuse.

This warranty is limited to the repair of the equipment and all further and eventually following damages are not covered by this warranty.

In the event of consignment of equipment to our factory, this should be done with the equipment well packed and prepaid transport. Tecfluid S.A. will not accept any responsibility for damage done during transport. Together with the equipment, a note should be enclosed indicating the failure observed, the name, address and telephone number of the sender.



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