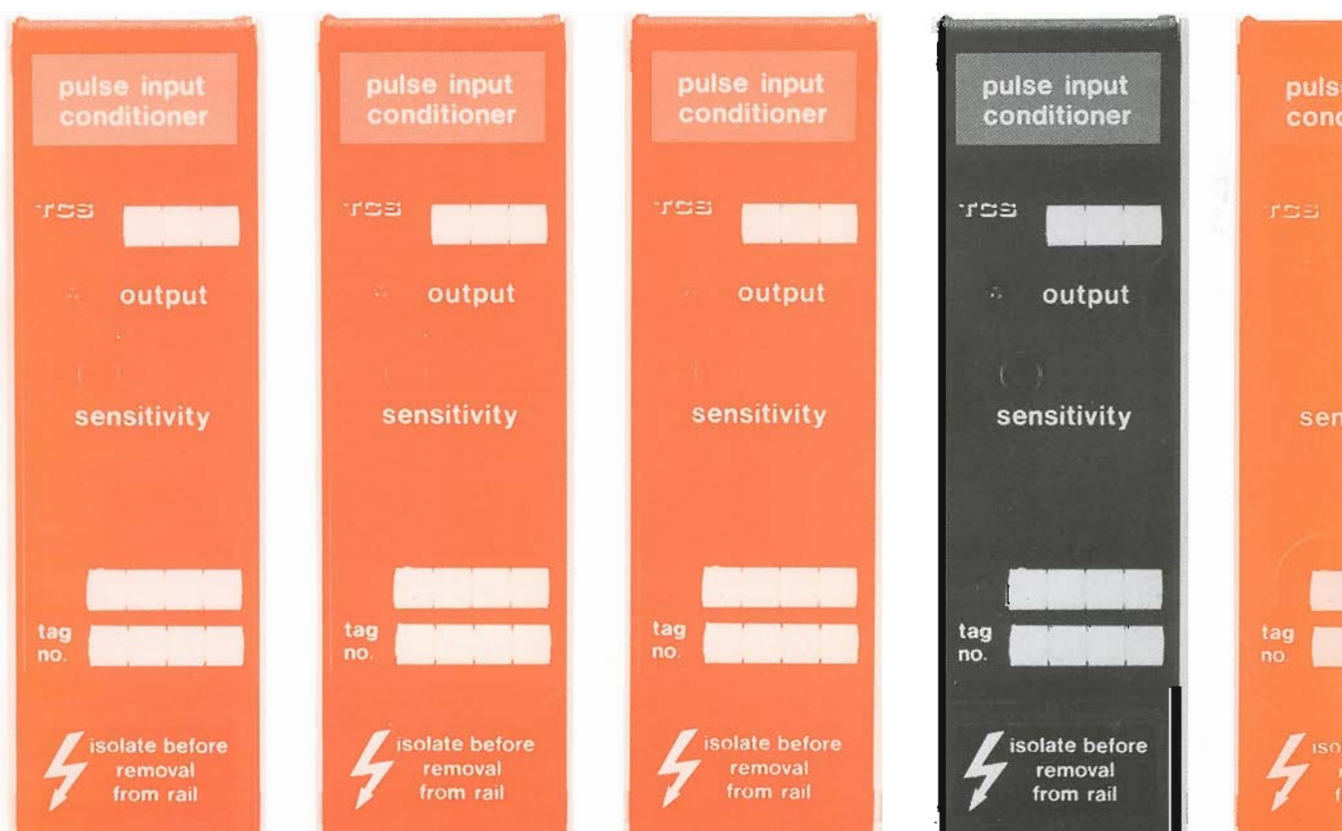




pulse input conditioner



# system 6000 D401



product  
specification

## Star features

- Wide range of input types
- Wide frequency range
- 3 port isolation: Input/power supply/output
- Easily configured into larger systems.
- Flexible input power supply
- Direct DIN rail mounting
- Clear plant and system labelling

## Function description

This module has been designed to condition a number of types of pulse inputs to provide a logic signal. The logic output signal is active pull down for logic 0 and 2.3k $\Omega$  pull up to 15 volts for logic 1. The logic 1 state is indicated by the light emitting diode. The pulse input types are discussed below.

### Contact Closure

The contacts should be wired between pins 8 and 7. The contact open circuit voltage is 24V or 15V. The switching threshold current is 3.5mA and an internal resistor limits the maximum current to 7mA. In order to reject contact bounce, a 10ms filter is applied to the input followed by a hysteretic comparator. The front panel potentiometer, marked sensitivity, reduces the hysteresis as it is turned clockwise.

### Proximity Detector

Electronic proximity detectors are treated as contact closures with a 15 volt supply and are connected between pins 8 and 7. The value of the internal limiting resistor allows for the "closed" impedance of the proximity switch. The filter time constant is reduced to a nominal value (10 $\mu$ s) to allow higher frequencies to be transmitted.

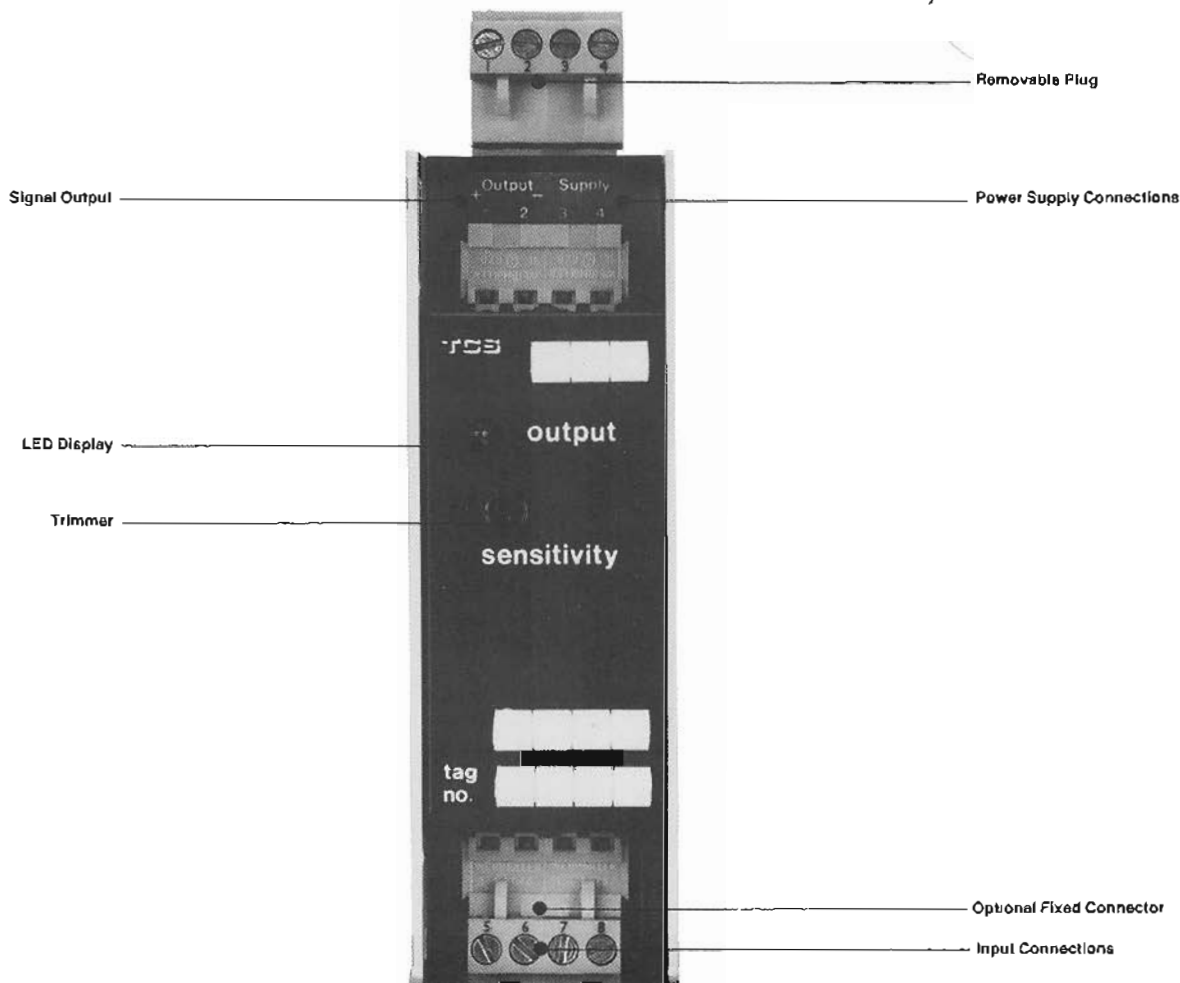
### Logic Inputs

The signal should be connected between pin 7 and 5. A resistor network at the input allows a wide range of digital inputs, both current and voltage to be used provided that the switching threshold is greater than or equal to 2 volts.

### Magnetic Pick-up

The signal should be connected between pins 6 and 7. The cable screen should be connected to pin 5. The input stage amplifies and shapes the input signal and drives the hysteretic comparator. The input received from the magnetic pick is of the 1mV/Hz type with a frequency of 10Hz to 3kHz.

A sensitivity adjustment is provided on a 20 turn potentiometer, which is accessed through the fascia. The adjustment in fact controls the level of hysteresis. When the potentiometer is turned fully clockwise there is no hysteresis and the internal comparator switches at approximately 2 volts. When the potentiometer is turned anti-clockwise the low switching threshold is unaltered at 2 volts and the high switching threshold is 3 volts. Unless it is necessary to introduce hysteresis, it is recommended that the potentiometer be turned fully clockwise.



## External features

The power supply and input connections are made with the plug-in terminal block at the top of the

instrument. The same connector system is available at the output for the plant connections (options PS). There

is also an option available for a fixed terminal block (option TB) as shown in the diagram above.

## Connection and installation

The pin numbering is 1 to 4 left to right, on the top connector, and 5 to 8, left to right on the bottom

PIN	FUNCTION
1	Output + ve
2	Output - ve
3	Supply
4	Supply
5	Common *Screen
6	N/C *Input
7	Input *Input
8	S +ve *N/C

\*Magnetic pick-up option

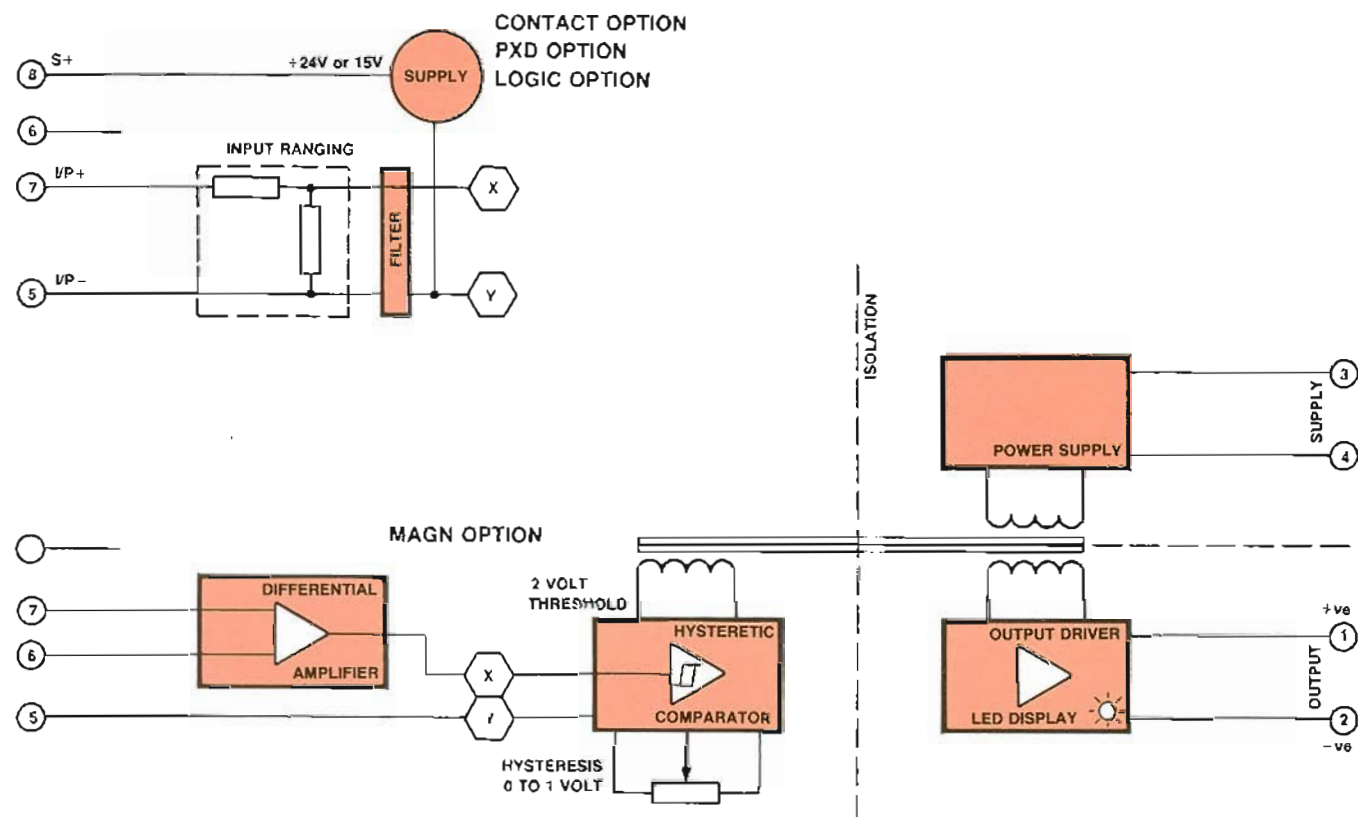
The instrument may be powered from

either an AC or DC source on pins 3 and 4. The DC supply voltage is nominally 24V (20–35V). The AC voltage range is 18–26V AC r.m.s. Internally the power supply circuit is galvanically isolated from the other circuits. This means that the power source may float, but it is recommended that the power circuit is earthed at a suitable point in the system, where this is possible.

The three circuits – power supply, input and output – are electrically isolated from each other and from the case, to simplify system design, by allowing the system designer to choose the points at which he defines the potential of these components of his system.

The internal operating voltages constitute no electric shock hazard. However, if the input is allowed to become live, care must be taken to earth the case. To facilitate this, an earth spring is provided at the back of the box connecting onto the DIN rail. There are parts available which are specifically designed to provide an earth for the rail.

The mounting of the instrument is directly to the 'top hat' cross section DIN rail (type T35). To install, the unit is rolled down until it clips into position. To remove, a screw driver is used to release the spring catch.



## Labelling

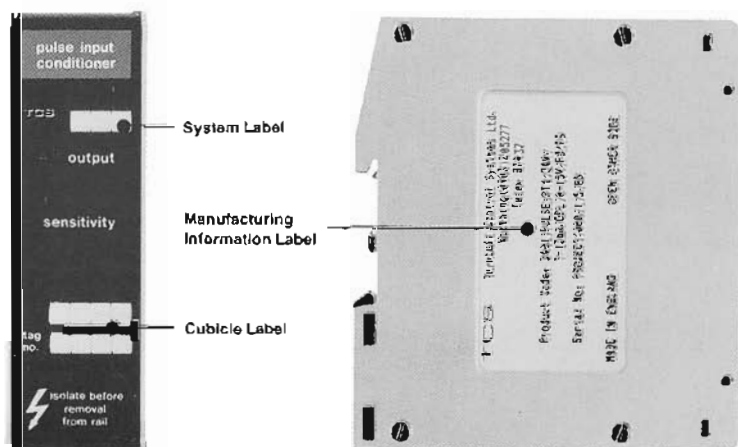
Two labelling areas are provided on the fascia. These labels are made up with Dekafix\* markers. The use of this labelling system ensures that the label is legible and may be transferred if the instrument is replaced or the system reconfigured.

The upper label, three markers, is provided for system identification and will normally indicate the position of the instrument within the housing.

The lower label, eight markers, is provided for functional identification or tag number. Although only eight marker

These positions will normally be supplied with blank markers but particular labelling may be specified within a system order.

There is a printed label on the side of the box with manufacturing information and the order code.



\* Dekafix is a registered trade name of Kilpon Electricals Ltd.



## Performance

### Power supply Range

20–35V DC  
18–26V AC r.m.s.

Current drain

40mA from 24V

### Input

Option dependent

### Output

Logic 0

0 volts through  
100Ω

Logic 1

+15 volts through  
2.3kΩ

### Isolation

INPUT to OUTPUT  
and POWER SUPPLY

250V AC r.m.s.  
250V DC (2kV TEST)

OUTPUT to POWER SUPPLY

60V AC r.m.s.  
60V DC (500V TEST)

### Transfer

Minimum frequency

Magnetic pickup option only  
Other

10Hz  
0Hz

Maximum frequency

Contact option only  
Other

20Hz  
3kHz

## Ordering information

Description	Order code
Product Number	D401
Product description	PULSE
Input – type/range	
Contact/open circuit volts – short circuit current	CONTACT/15V – 7mA CONTACT/24V – 7mA
Proximity detector/open circuit volts – short circuit current	PXD/15V – 7mA
Pulse transmitter/supply, current range	PTX/24V, 7–12mA
Logic/logic low – logic high	LOGIC/7 – 12mA
Magnetic pick-up	MAGN/1mV per Hz
Output type/range	OPL/0 – 15V

Options: If these are not included in the specification the default value will be assumed. The default value is the first option shown except where otherwise stated.

Filter None fitted 10ms (default for CONTACT input)	F0 F10
Plant connector Plug and socket Terminal block	PS TB
Fascia labelling Blank If T is used two fields of 3 and 8 characters must be specified for each module	— T

Example: D401/PULSE/CONTACT/24V–7mA/OPL/0–15V/TB

## Details

Overall dimensions in mm of housings.

Width	:	35
Height	:	110
Depth	:	97



**Interface Products**

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