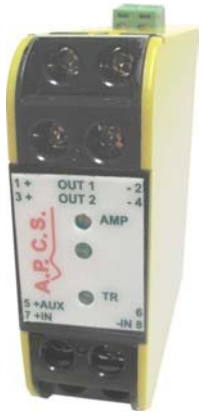
Pulse Splitter v2 PLS257



The PLS257 is for applications where a pulse is required to be isolated, re-powered and repeated on two separate outputs (splitting) up to a maximum frequency of 100kHz. The output pulse width is adjustable (PW) to provide “pulse stretching” where the input pulse is very short. Input signals of various types or from a variety of sensors can be accommodated:

1) **Low level ac**, sine waves as produced by coil-type pick up (min 500mVpp).
2) **Low level pulse**, any wave shape having a consistent frequency pattern (500mVpp up to 20Vpp).
3) **DC pulse**, (500mVpp up to 50Vpp).
4) **NAMUR proximity sensor or pulsing contact** - the sensor is directly connected to the PLS257 as the module provides the 8Vdc auxiliary supply.
5) **All types of 3-wire proximity sensors**, optical sensors or any devices with NPN/PNP open collector transistor output requiring 5-24Vdc auxiliary supply at 20mA maximum.

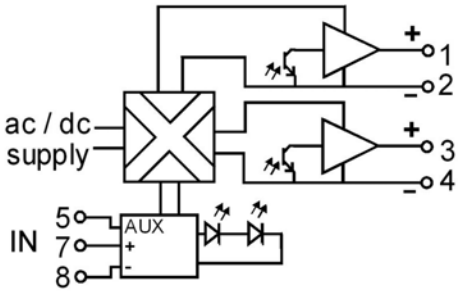
A pulse with a DC offset can also be accommodated using the front mounted 'TR' or trigger level adjustment. The level of OUT1 (when ordered as pulse source) is set using a top accessible trim pot close to the power plug. The level of OUT2 (when ordered as pulse source) is set using the front accessible 'AMP' trim pot. The module output is indicated by a front mounted LED which provides clear indication of module function and frequency output. The PLS257 provides galvanic isolation up to 1500Vdc between input, both outputs and supply circuitry. RF and power transient protections are standard as it is with all APCS modules. A wide range ac/dc power supply is available in two variations 10-60Vdc / 16-48V 50/60Hz or 60–160Vdc / 48-150V 50/60Hz.

General Specifications

Size:	23.5W x 71.5H x 109D (mm).
Housing material:	ABS.
Mounting:	DIN-Rail, gear plate.
Termination (input / output):	Top mounted screw terminals.
Termination (power):	2-way plug-able screw terminal.
Protection class:	IP40 (IP65 Enclosure Opt)
Weight:	0.120 kg.
Operating temperature:	-10 to +50°C.
Frequency range:	Up to 100kHz
Supply/Input/output 1 /output 2 isolation:	1.5kV rms.
Output transistor rating:	30V, 100mA.
Output Pulse Drive:	20mA maximum
Minimum Input Pulse Width:	5µs.
Output Pulse Width:	Adjustable 5µs...500ms
Output Pulse Level:	3 – 22V adjustable.

Electromagnetic compatibility: Complies with AS/NZS 4251.1 (EN 50081.1)

Block diagram



TYPICAL APPLICATIONS

1) **Pulse splitting** where 1 pulse has to be duplicated and isolated.
2) **Pulse conditioning**, where the input signal is generated by a proximity or inductive sensor with low amplitude or sinusoidal wave shape.
3) **Pulse isolation**, where the input pulse is referenced to ground or has a high common mode or DC component. Both outputs are isolated from each other.
4) **Pulse stretching** for applications, where the input pulse is too short to be registered by a PLC or any other receiving device. Often a combination of pulse division and stretching can provide the solution (example: high speed work piece counting - bottle conveyor).
5) **Pulse follower** for applications where pulse isolation or level amplification is required while maintaining mark/space relationship.

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

Type NO. Designation

PLS257 - X X X X X X

Power Supply:

1 = 10-60Vdc / 16-48V 50/60Hz
2 = 60–160Vdc / 48-150V 50/60Hz

Input:

(specify frequency & amplitude)

1 = Sine, sawtooth or pulse (0.2 - 50Vdc), 24Vdc aux.
3 = NAMUR proximity sensor or contact, 8Vdc aux.
4 = 3-wire NPN proximity sensor 15Vdc auxiliary.
5 = 3-wire PNP proximity sensor 15Vdc auxiliary.
6 = 3-wire NPN proximity sensor 24Vdc auxiliary.
7 = 3-wire PNP proximity sensor 24Vdc auxiliary.
8 = 2-wire 24V DC/AC proximity sensor, 24Vdc aux.
*) 9 = Other (Specify).

Output Pulse Width:

1 = Adjustable 5µ s (100kHz) to 500µ s (1kHz), specify.
2 = Adjustable 50µ s (10kHz) to 5ms (100Hz), specify.
3 = Adjustable 5ms (100Hz) to 500ms (1Hz), specify.
4 = Pulse follower (100kHz max).
*) 9 = Other (Specify)

Note: $Max_{InputFrequency} = \frac{0.5}{Pulse_{Witdth}(Seconds)}$

: Options

0 = None.
*) 1 = Frequency Division $F_{OUT.} = \frac{F_{IN.}}{n}$
Specify 'n', n = 1 to 99 (integer).
*) 9 = Other (Specify).

: Pulse Type OUT 2

1 = Sourced 3 – 22V Adjustable. 5V default, specify.
2 = Sink
*) 9 = Other (Specify)

: Pulse Type OUT 1

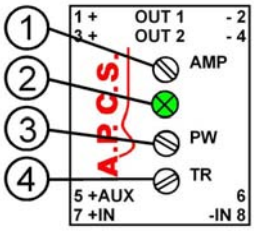
1 = Sink
2 = Sourced 3 – 22V Adjustable. 5V default, specify.
*) 9 = Other (Specify)

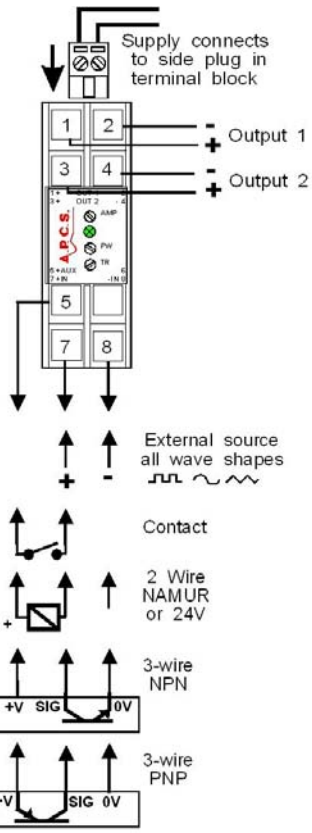
If replacing a 'PLR255 - Pulse Repeater' it is recommended that OUT1 is ordered with sink mode and OUT 2 with source mode.

*) = Price Extra.

Front Control Explanation

1) **AMP** - amplitude adjust 15 turn for OUT 2 (OUT 1 amplitude adjustment is accessible through a hole in the top of the case.
2) **LED** - Output indicator.
3) **PW** - pulse width adjust 15 turn (disabled on pulse follower option).
4) **TR** - trigger level adjust 15 turn.





Frequency Division Option (when fitted)

The division setting can be changed by setting JP1 and JP2

1 2 3 4	dec
- - - -	0
x - - -	1
- x - -	2
x x - -	3
- - x -	4
x - x -	5
- x x -	6
x x x -	7
- - - x	8
x - - x	9

e.g. Divide by 75

UNIT	TEN
1 2 3 4	1 2 3 4
x - x -	x x x -
5	7