

The **PIG detector DSES** is designed to detect and register the passage of a PIG moving inside a oil or gas pipeline at the points where the detector **DSES** is installed. Providing reliable information about the passage of the PIG increases pipeline integrity and produces cost savings.

By processing the signals inside the **DSES** device which are coming from the detectors integral sensor units and transmitting the data of the passage of the object to the automated process control system, via means of standard industry protocols such as 4-20mA, RS-485, Relays.

The allows the detector to be versatile and compatible with all available designs of PIG's which are being used by the operators globally. **DSES** is distinguished by increased noise immunity, which excludes false triggering and skipping of the in-tube object. Convenient mounting of the sensor will shorten the time for installation and further startup.

The devices is non-intrusive allowing the operator to easily install, remove or relocate the device. It is installed directly on top of the pipeline surface, with a clamping system, which can be performed by one person, without any need of welding or drilling in order to mount the device onto the pipeline.

The device can also be installed on a pipeline which is located beneath the surface with installation depth from 1,8m to 3m. The device is available in **Topside** and **Subsea version** for use in both onshore and offshore pipelines, with ability to monitor the PIG with moving speeds from 0,1 to 10 m/s.



The sensor provides reliable detection of PIG's of any type due to constant presence of three methods of signal registration. These three methods are:



MAGNETIC



ACOUSTIC
ULTRASONIC



ELECTROMAGNETIC

Features and Benefits



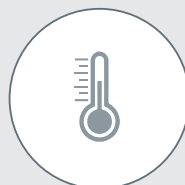
Industry standard protocols 4-20mA, Relays



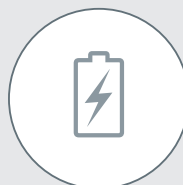
3 sensing methods in 1 device (Acoustic, Electromagnetic, Magnetic)



Onboard signal processing unit



High operating temperature range for operating in harshest environments



Low power consumption



Stainless Steel (SS316) construction for installation in harsh environments and corrosion resistance



Non-intrusive installation

ELECTRICAL CHARACTERISTICS

Voltage	18-32VDC
Power	<2W standby
Outputs	4-20mA RS-485 (Modbus) Relays
Sensor	Ultrasonic Acoustic Electromagnetic Magnetic

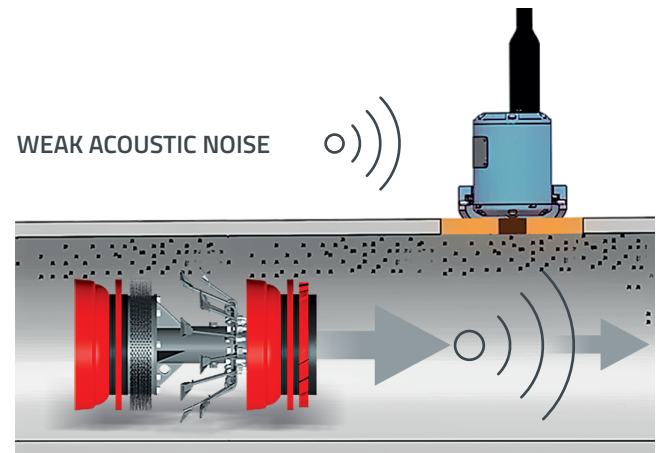
MECHANICAL CHARACTERISTICS

Material of construction	Aluminum/SS316
Cable Entry	1- 3/4 NPT
Weight	2.5 kg (Al)/ 5.0 (SS316)
Warranty	2 years

PERFORMANCE CHARACTERISTICS

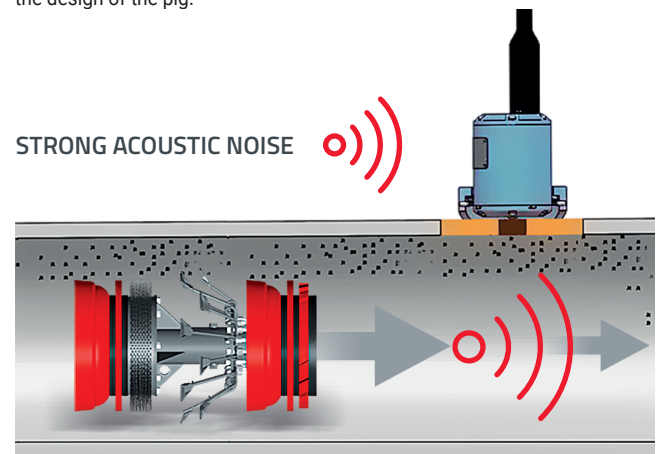
LED Indication	Green, Red, Yellow
IP Rating	IP66/68
Explosion Proof Rating	Ex db IIC T4 Gb
Relative Humidity	Up to 95% (non condensing)
Operating Temperature	-60C to +85C
Pipe Thickness	2-25 mm
Pipe Diameter	300-2500 mm
Pipe Material	All types of steel alloys
Operating Mode	Real time measurement
Speed of Moving PIG	0,1-10 m/s
Detection Direction	Bidirectional
Flow Conditions	Oil, Gas, Water, Multiphase
Repeatability	<1%
Mounting	Non Intrusive via mounting bracket

WEAK ACOUSTIC NOISE

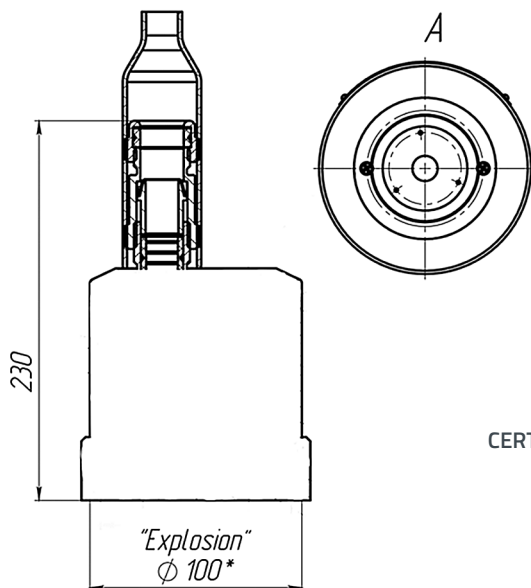


Conclusion on the passage of the object is done when the thresholds are exceeded according to the acoustic (always) and electromagnetic and/or magnetic. The presence of magnetic or electromagnetic signal depends on the design of the pig.

STRONG ACOUSTIC NOISE



By processing the signals inside the dsed device which are coming from the detectors integral sensor units and transmitting the data of the passage of the object to the automated process control system, via means of standard industry protocols such as: **4-20MA, RS-485, RELAYS.**



CERTIFICATE



Class I, Division 1,
Groups B, C & D,
IP66



Certificate of Conformity:
CE Mark for EMC (TUV)
CE Mark for IECEx



Ex B IIC T4 Ta =
-40°C to +85°C