Ultrasound Solutions

Commercial document DC.R270.DAT.001

Datasheet SDT 270 (Standard & ATEX version)

Description:

The SDT270 ultrasound detector features multiple significant innovations dedicated to the improvement of predictive maintenance programs. Manufactured by and for maintenance professionals, the SDT270's innovations show our commitment to the production of intelligent and progressive instruments.

Not only is the SDT 270 the first portable ultrasound detection device to include both a built-in temperature sensor and a laser tachometer, but it's also the first one to feature an onboard SQL database to capture and manage survey data.

Main features:

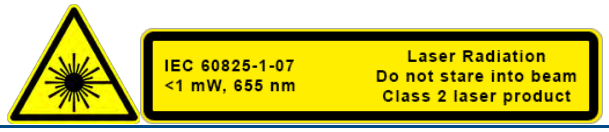
- Available in Standard or ATEX version
- Measures broadband ultrasound signals up to 100 kHz bandwidth
- Realizes data acquisition with a 256 kHz sampling frequency
- Uses long-duration time sampling and data streaming
- Integrates built-in thermometer and tachometer with a laser
- Includes a SQL database
- Includes an Operator logging in
- Insures full measurement traceability from Operator to sensor
- Warns the Operator when an alarm is triggered
- Is IP (Internet) addressable
- Is remotely controlled and operated
- Incorporates 2 measurement channels

Specifications:

General		
Function		Handheld multifunction data collector
Operable with		Provided sensors
Software compatibility		Ultranalysis Suite 3, DataDump,
Versions		FUR270, FUR270A (ATEX)
ATEX marking		CE 0029 Ex II(1) G Ex ia II C T3/T2 Ga
Input interface		2 channels via 7 pole LEMO connector
Built-in sensors		Ultrasonic airborne sensor Temperature sensor (optional) Tachometer (optional)
Display		Graphic LCD with backlighting (128 x 64 pixels)
Supported languages		Multilingual

Keyboard		12 functions keys
Measuring frequency range	kHz	Up to 100
Signal amplification	dB	from 0 to +90 by step of +10
Typical measuring range	dB	-13 to +99.9
Resolution	digits	0.1
Refresh RMS period time	ms	250
Raw sampling frequency	ksps	256
ADC Resolution	bits	16
Response time	ms	< 10
Auto power down	min	Customizable
Communication		USB interface Ethernet 10/100 Mbps (only on standard version, not available on ATEX version)
System features		
Firmware		Regular updates
Data logger (upgradable)		**SDT270 SS & SD with DataDump software:** • 100 measurement nodes for a total capacity of 4 000 measurements **SDT270 DD with DataDump software:** • 100 measurement nodes for a total capacity of 4 000 measurements • dynamic measurements: 6 675 seconds with US sensor **SDT270 SU used with Ultranalysis Suite 3:** • more than 10 000 measurement nodes with static data **SDT270 DU used with Ultranalysis Suite 3:** • static measurements: more than 10 000 measurement nodes • dynamic measurements: 6 675 seconds with US sensor
Recording formats		Static or Dynamic measurements (wavefiles, heterodyned signals at 8ksps)
Max acquisition time per recording	s	80 seconds at 8 ksps
Environmental		
Standard temperature range	°C (°F)	-15 to +60 (5 to 140), non-condensing
Ambient temperature range on ATEX version		-Class T2 / -15 °C to +60 °C / 5 °F to 140 °F -Class T3 / -15 °C to +48 °C / 5 °F to 118 °F
IP rating		IP 30
Approvals		EMC compliant (directive 2014/30/EU) ROHS compliant (directive 2011/65/EU) LVD compliant (directive 2014/35/EU) ATEX compliant (directive 2014/34/EU) ; for the concerned version

Type approval from Lloy's register (Certificate No. 17/30042 for Sherlog kit)		Application : Verification of marine, offshore, and industrial weather tightness of hatch covers, doors, ramps, and windows
Mechanical		
Housing material		Extruded aluminum
Protective holster		Fluorosilicone, hydrocarbon-resistant
Dimensions	mm (in)	L x W x H : 226 x 90 x40 (8.9 x 3.5 x 1.6)
Weight	g (oz)	830 (29.3), battery and holster included
Audio connector		6.5 mm jack
Utility connector (Cannot be used as a recharging port)		USB Mini (import/export data and update the firmware)
Battery		
Battery pack		Internal, rechargeable type NiMh
Nominal capacity	mAh	4000
Voltage	V	4.8
Autonomy	hours	~ 8
Battery charger (Please only used the provided charger)  Battery charge of the SDT2XX ATEX must exclusively be performed outside potentially explosive environments.		specific for SDT2XX NiMH battery pack Power supply: 230 or 110 VAC +15% /-10% - 50/60Hz Output voltage: +4.0 or 8.5 V DC (depends on operating mode) Current: 1000 mA maximum Recharge time: 5 to 6 hours typical in fast mode / 12 to 14 hours typical in slow mode Protection: temperature protected; limit set at 60°C / 140 °F
Audio		
Operable with		provided headset only (Peltor) :25 dB NRR with Peltor quality heaphones
Safety note		Compliant with directive 2003/10/EC, noise exposure, health and safety protection using SDT devices and provided headsets
Maximum audio output (protection)	dB SPL	+83 with SDT provided headset
Ultrasound measurement		
Operable with		SDT provided sensors/ built-in sensor (intUS1) SDT ATEX sensors are only intended for use with ATEX instruments
Sensitivity		Class I exceeding ASTM 1002-11 requirements for gas leak detection with the built-in sensor
Reference calibrated voltage		$V_0 = 1\ \mu V = 0\ dB\mu V$
dB scale definition		$X\ dB\mu V = 20\log(V/V_0)$ where V is measured then converted in X dBµV
Typical measuring range		from -10 dBµV to 109 dBµV using gain function *depending on the sensing capacity of the sensor
Sampling rate	ksps	8 (heterodyned)
Available filters		Determined from the sensor recognition
Indicators		RMS, Max RMS, Peak and Crest Factor

Refresh rate	ms	250
Audible rendering		Indirect via heterodyne method
Mixer frequency	kHz	Tunable, default mixer from the sensor recognition to provide the best audible rendering
Vibration measurement		
Compatible accelerometers		Any 100mV/g ICP accelerometer
Vibration units		Accelerometry [g] and velocity [mm/s, ips]
Measuring range		Up to 20 g peak
Available filters		[10 Hz-1 kHz] at 8 ksps [10 Hz-10 kHz] at 32 ksps
Indicators		RMS velocity, RMS acceleration, Peak acceleration, Crest Factor
Refresh rate	ms	250
Audible rendering		Direct
Temperature module (on-board)		
Type		High precision non-contact infrared thermometer
Available units		Celsius, Fahrenheit, Rankine, Kelvin
Adjustable emissivity		[0.01 to 1], 1 by default
Measuring range	°C (°F)	-70 to +380 (-94 to +716)
High accuracy in a wide temperature range (0°C to 50°C--32°F to 122°F)	°C	± 0.5 °C
Field of view (attenuation of 50%)		10° : cover a spot of 10 cm (1/3 ft) at a distance of 10 cm (1 ft)
Rotational speed module (on-board)		
Type		Optical sensor
Units		RPM/CPM and Hz
Type of source		Red laser Class II 
Cautions		• *Never look directly to the laser beam* • *Never point the laser beam at a person' eye* • *Do not aim the laser at specular reflective surfaces* • *Never view the laser using an optical instrument*
Recommended measuring distance	mm (in)	50 to 2000 (2 to 80)
Measuring range		~10 to 99 999 RPM *a reflective band must be stick on the rotating part to perform a measurement
Warranty		
Lifetime warranty		Visit for details

NB: Additional details are available from the download section of SDT website

Compatibilities:

SDT 270 receiver is designed to work in combination with the provided sensors and the associated cables of predefined length.

Sensors denomination	type	Non-exhaustive pillar applications
RS1T (in ATEX version) /RS2T	contact	Mechanical, steam trap
RS1NL 100-300-500 (in ATEX version) RS2NL 100-300-500	contact	Mechanical, steam trap, valves, hydraulics
LUBESense1	contact	Lubrication
FLEXEX (ATEX version) /FLEX ID2	airborne	Leak, electrical, tightness
PARADISH2 (Standard or ATEX version)	airborne	Electrical
TTS1/TTS2 (in ATEX version)	airborne, enclosed	Tightness for Tank tests
100mV/g ICP accelerometer (Hansford)	contact	Mechanical

In addition, SDT 270 receiver is compatible with SDT softwares running on windows OS. The communication is ensured with the provided USB cable.

Make sure you always run the latest version of the software & firmware to take advantage of new features. Please refer to the user manual for instructions on how to proceed.

Safety recommendations:

• Do not expose the equipment to rough handling or heavy impacts

• Please read the user manual carefully before first use

• Opening the housing of the instrument may result in hazardous mishandling and voids warranty

• The equipment should not be used in areas where there is a risk for explosion

• Do not expose the equipment to high humidity or direct contact with water

• All repair work must be performed by SDT or authorized services

• Using any other headset or any sensor than the one supplied with the instrument can cause internal damage to the device

4	CMA 2021/07/20	New layout	BDG
3	CMA 2021-22-01	Correction du nobo, ajout temp range atex T2/T3	CGR
2	BDK 2015-07-13	Ethernet not available on ATEX version	GEL
1	JPD	Original version	GEL
Ver.	**Editor**	**Nature of modification**	**Verified**

The information herein is believed to be accurate to the best of our knowledge.
Due to continuous research and development, specifications are subject to change without prior notice.