

YTED Intrinsically Safe Digital Pressure Switch

For absolute or gauge vacuum and pressure measurements
 Two threshold outputs: PNP transistor
 Power supply via 4-20 mA current loop
 Stainless steel, rugged build for severe industrial environments

LCIE 03 ATEX 6300X

CE 0081



Hazardous areas: 0, 1 and 2

The YTED digital pressure switch is designed to control pressure in industrial hydraulic or pneumatic processes such as level regulation or jack operation.

The YTED is based on microprocessor technology and is entirely programmable on site via code protected keys.

We offer a complete ATEX EEx ia approved system comprising: the YTED and processing modules for the threshold outputs and/or 4...20 mA signal (see page 3)



Specifications (20°C)

Measurement range	Absolute pressure: 0...1 to 0...60 bar Gauge pressure: -1...0 to 0...400 bar
Display	-1999 to +9999 points. 4 digit red LEDs (8 mm high)
Power supply voltage	10 to 28 VDC, unregulated. Protection against polarity reversals.
Output signal	Power supply via 4-20mA current loop (2 wires)
Switching capacity	40 mA at 28 VDC power for each threshold
CE conformity	EMC directive 89/336/CE PED pressure directive 97/23/CE ATEX directive 94/9/CE
Accuracy	± 0.5% of the measurement range
Repeatability	± 0.2% of the measurement range
Operating temperature Ambient (Ta)	-25...70°C Ta = +40°C G: T6 Ta = +70°C G: T5 (G = Gas)
Fluid	-25...100°C
Storage temperature	-40...85°C
Thermal drift	± 0.015% measurement range/°C max.
Materials in contact with the fluid	Ceramic, stainless steel 1.4404 (316L), NBR seal (standard)
Connections	Electrical: Connector M12-5 pin male contacts Pressure: see codification, page 2 Aseptic connection: see data sheet A31.03
IP rating (EN 60 529)	IP 65
Typical response time of the threshold outputs	≤ 20 ms
Resistance to vibration (EN 60068-2-6)	1.5 mm (10 Hz ... 55 Hz) / 20 g (55 Hz ... 2 kHz)
Resistance to shock (EN 60028-2-32)	25 drops from 1 meter onto a concrete floor

Accessories

- 5-pin M12 mobile connector, screw terminal connection. **Code 2260**
- Moulded M12-5 pin cable, length 2 m. **Code 2267**
- Moulded M12-5 pin cable, length 5 m. **Code 2269**
- Moulded M12-5 pin cable, length 10 m. **Code 2236**
- Screened moulded M12-5 pin cable, length 2 m. **Code 0604**
- Screened moulded M12-5 pin cable, length 5 m. **Code 0605**
- Screened moulded M12-5 pin cable, length 10 m. **Code 0606**

Important: TED series pressure switches have a immunity against high frequency interference. In environments with a high radiation (eg.GSM), we recommend to use screened cable.

Options

- 300° swivelling version. **Code 0622**
- Oxygen application **Code 0765**
- Specific cleaning (gas application). **Code 0829**
- Thread locking. **Code 0771**
- Other pressure connections available to order.

Configuration

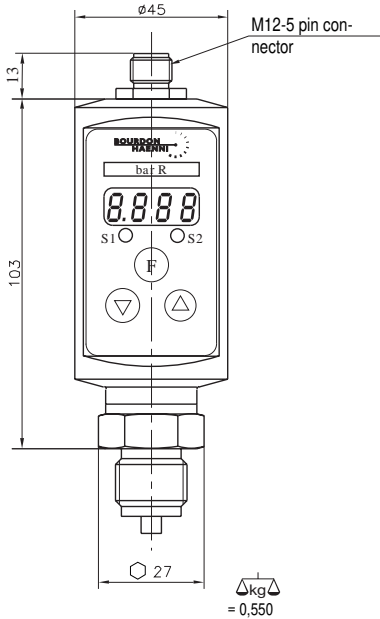
The three keys on the front panel are used to configure the following operating parameters:

- Trigger point of 2 independent thresholds
- Hysteresis value of each adjustable threshold
- Threshold active state (NO or NC)
- Pressure auto-zero (only on the gauge pressure version)
- Parameter self test and protection by 4-digit code

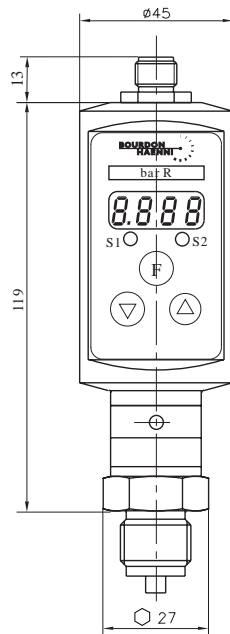


Dimensions (mm), Connections

Standard version

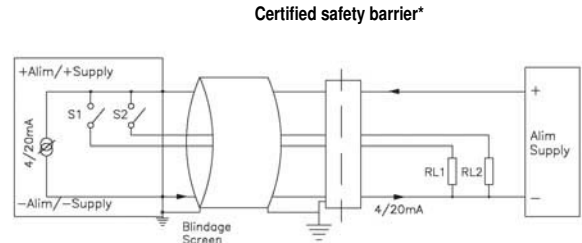


Swivelling version
Option code 0622



Hazardous area
(0, 1 or 2)

Non hazardous area



$$U_{\max} = 28 \text{ VDC}$$

$$I_{\max} = 120 \text{ mA}$$

$$P = 0,8 \text{ W}$$

$$C_i = 13,2 \text{ nF}$$

$$L_i = 0$$

*** Important:**

In area 0, the combination of the pressure switch and the safety barrier must be covered by a calculation checked by an approved body.

We offer a system of pressure switch + safety module + cable already certified by an approved body: see next page.

Measurement ranges (bar)

Measurement range	-1 +0	-1 +0,6	0 +1	0 +1,6	0 +2,5	0 +4	0 +6	0 +10	0 +16	0 +25	0 +40	0 +60	0 +100	0 +160	0 +250	0 +400
Max. over pressure	3	3	3	3	4	8	12	20	32	50	80	120	200	320	500	600
Burst pressure	7	7	7	7	7	12	18	30	48	75	120	180	300	480	600	800
Display at Measurement range	-1.000/0	-1.000/0.600	0/1.000	0/1.600	0/2.500	0/4.000	0/6.000	0/10.00	0/16.00	0/25.00	0/40.00	0/60.00	0/100.0	0/160.0	0/250.0	0/400.0

Codification – YTED

Type	1'...4' digit	YTEDxxxxxx
Intrinsically Safe Digital pressure switch	YTED	
Pressure connection	5' digit	
G1/4 EN837		2
G1/4 DIN 3852-E		B
G 1/4 Female EN837		H
G1/2 EN837		3
1/4 NPT EN837		5
1/2 NPT EN837		6
M20x1.5		9
Sensor seal	6' digit	
NBR (nitrile) standard		3
EPDM		5
FFKM Chemraz® 505		7
FKM (Viton®)		9
Measurement ranges	7'...9' digit	
bar		Bxx
kPa		Dxx
kg/cm ²		Fxx
psi		Hxx
Pressure mode	10' digit	
Absolute		A
Gauge		R

code	bar kg/cm ²	kPa	code	psi	A - R
59	-1 + 0	-1 + 0	59	-30" Hg + 0	- R
72	-1 + 0,6	-1 + 60	73	-30" Hg + 15	- R
74	-1 + 1,5	-1 + 150	75	-30" Hg + 30	- R
76	-1 + 3	-1 + 300	2C	-30" Hg + 60	- R
77	-1 + 5	-1 + 500	78	-30" Hg + 100	- R
79	-1 + 9	-1 + 900	79	-30" Hg + 150	- R
81	-1 + 15	-1 + 1500	81	-30" Hg + 220	- R
82	-1 + 24	-1 + 2400	82	-30" Hg + 300	- R
1L	-1 + 39	-1 + 3900	1L	-30" Hg + 600	- R
15	0 + 1	0 + 100	15	0 + 15	A R
16	0 + 1,6	0 + 160	1C	0 + 20	A R
18	0 + 2,5	0 + 250	17	0 + 30	A R
19	0 + 4	0 + 400	19	0 + 60	A R
20	0 + 6	0 + 600	21	0 + 100	A R
22	0 + 10	0 + 1000	22	0 + 160	A R
24	0 + 16	0 + 1600	23	0 + 200	A R
26	0 + 25	0 + 2500	25	0 + 300	A R
27	0 + 40	0 + 4000	26	0 + 400	A R
29	0 + 60	0 + 6000	27	0 + 600	A R
31	0 + 100	0 + 10000	30	0 + 1000	A R
33	0 + 160	0 + 16000	31	0 + 1500	A R
35	0 + 250	0 + 25000	34	0 + 3000	A R
38	0 + 400	0 + 40000	38	0 + 6000	A R

YTED ATEX EEx ia approved system

We offer a complete system of pressure switch + safety module
ATEX Intrinsic Safety for hazardous areas.

Two systems are available:

System 1 – 2 threshold outputs

YTED + cable + NAEV30-YTED module

System 2 – 2 threshold outputs + 4...20mA output signal

YTED + cable + NAEV30-YTED module + PROFSI module

Intrinsic safety system – YTED/AP3 type:

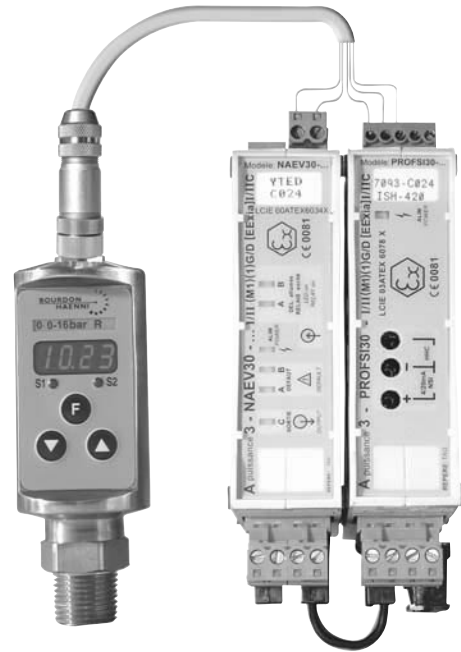
LCIE 04 ATEX 6188X



IM1/(M1) G SYST
EEx ia/[ia] I



II 1/(1) G SYST
EEx ia/[ia] IIC T6 to T5



Description

The YTED is an ATEX intrinsic safety approved pressure switch. To process the threshold and/or 4...20mA analogue signals, the YTED needs to be connected to a safety barrier placed in a non hazardous area.

The system type EC examination (LCIE 04 ATEX 6188X) covers the installation of YTED pressure switch in area 0 with the processing module(s) installed in non hazardous area.

The power supply to the pressure switch is via the processing modules. The modules receive their supply from a standard 24 VDC power source (see option reference on page 6).

It is also possible to insert one or more junction boxes in your installation (see page 6).

NAEV30-YTED - 2 threshold output module

The NAEV30-YTED is a logic processing on off module providing galvanic insulated outputs. It enables the data from thresholds 1 and 2 to be processed.

It provides the supply to the YTED pressure switch. The 4...20mA analogue signal is not available.

The NAEV30-YTED is associated intrinsic safety equipment. It must be installed in a non hazardous area.

It can be connected to equipment installed in areas 0, 1 or 2 – gas (G).

LCIE 00 ATEX 6034X

ⓘ I/II (M1)/(1) G/D [EEx ia] II C

Specifications

Supply voltage	24 VDC	Maximum ambient temperature	-20...60°C
Consumption	5 VA	Recommended ambient temperature	-20...50°C
Switching capacity	500 mA - 230 Vac or 110 Vdc	Storage temperature	-40...80°C
Response time	100 ms	Fitting	Snap-on to a symmetrical 35 mm section rail
Power on	Front panel light	Dimensions	Depth: 120 mm
Thresholds status	Indicator light on the front panel for each threshold		Height: 90 mm
Connection to unpluggable connection blocks			Width: 29.5 mm
Supply current fed from module to module via a flat jumper			

Item part number NAEV30-YTED-C024-0

Order code 0601



PROFSI - 4...20mA output module

The PROFSI module provides the power supply to the YTED pressure switch. It enables the 4...20mA signal to be processed. Data from thresholds 1 and 2 is not available.

The PROFSI is associated intrinsic safety equipment. It must be installed in a non hazardous area.

It can be connected to equipment installed in areas 0, 1 or 2 – gas (G)

LCIE 03 ATEX 6078X

ⓘ I/II (M1)/(1) G/D [EEx ia] II C

Specifications

Power supply voltage	24 VDC	Maximum ambient temperature	-20...60°C
Consumption	3 VA	Recommended ambient temperature	-20...50°C
Duplicate signal	4...20 mA Duplicate signal accuracy 0.15% Opto-electronic insulation	Storage temperature	-40...80°C
Maximum load	750 Ω	Fitting	Snap-on to a symmetrical 35 mm section rail
Transfer time	< 50 ms	Dimensions	Depth: 120 mm
Power on	Front panel light		Height: 90 mm
Connection to unpluggable connection blocks			Width: 29 mm
Supply current fed from module to module via a flat jumper			

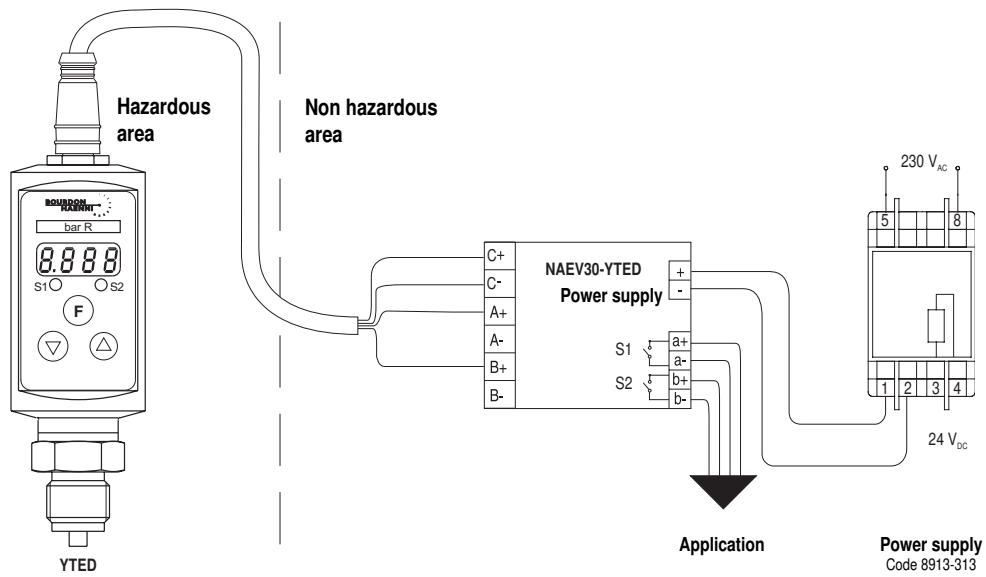
Item part number PROFSI30-27093-C024-ISH

Order code 0602



System 1 - 2 threshold outputs module

Installation diagram



M12-5 connector

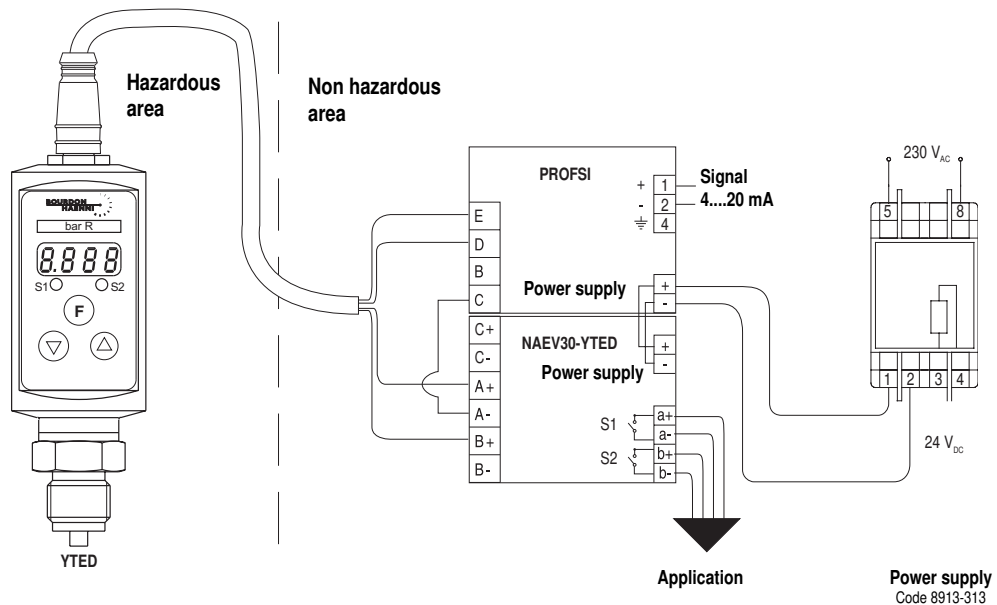


	Cable	YTED	NAEV
+ Power supply	Red	1	C+
- Power supply	Blue	3	C-
Threshold 1	Yellow	4	A+
Threshold 2	White	2	B+

Note: One or more junction boxes can be added between the YTED pressure switch and the NAEV30-YTED module.

System 2 - 2 threshold outputs + 4...20mA output signal

Installation diagram



M12-5 connector



	Cable	YTED	NAEV30	PROFSI
+ Power supply	Red	1		E
- Power supply	Blue	3		D
Threshold 1	Yellow	4	A+	
Threshold 2	White	2	B+	

Note: One or more junction boxes can be added between the YTED pressure switch and the NAEV30-YTED and PROFSI modules.

Connection cable

The cable is ATEX EEx ia approved for use in hazardous areas. It can be used to connect the YTED pressure switch to the NAEV30 module (System 1) or to the NAEV30 and PROFSI modules (System 2).

Specifications

M12-5 pin mobile metal plug + 4 core shielded cable

Order code

Code	0623	0624	0625
Length (m)	20	50	100

Junction box

The system can be equipped with a certified junction box or according to clauses 7 and 8 standard EN 50014 and clauses 5.4 standard EN 50020.

Dimensions 127 x 81 x 57 mm

Order code 0603



Example of codification

Example of an order code for a System 2:

YTED33B22R + 0623 + 0601 + 0602

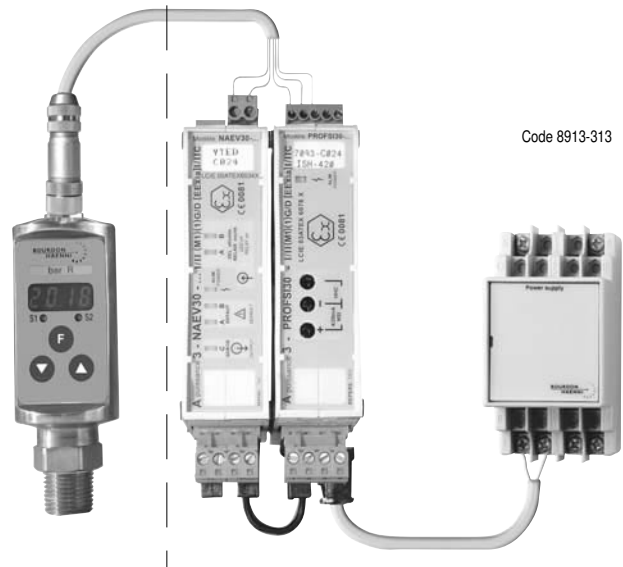
Signifies:

- YTED, G1/2, NBR seal, 0...10 bar gauge pressure
- + M12-5 pin mobile metal plug and shielded 4 core cable, length 20 m.
- + NAEV30-YTED-C024-ISH, 2 threshold output module
- + PROFSI30-27093-C024-ISH, 4...20 mA output module

Option: 230VAC-24VDC / 85 mA power supply. Code 8913-313

Hazardous area

Non hazardous area



Code 8913-313

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