



PIG-SIG® NI^{XT}

Non-Intrusive Pig Passage Indicator



T.D. Williamson, Inc.

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Description

The PIG-SIG® NI^{XT} produces accurate and consistent non-intrusive detection of pig passages anywhere within a pipeline system. The unit is easily attached onto a pipeline, where it can begin scanning for permanent magnet-equipped pigs or certain scrapers with carbon steel cleaning brushes. Since the device is fully non-intrusive, no tapping or welding is required, thus saving the operator time and money spent on the installation of conventional signal devices (see five easy steps to install on page 4 of this bulletin).

When a pig detection is recorded by the PIG-SIG NI^{XT}, two flashing LED lights visible up to 50 feet away (in bright sunlight) indicate that a recent pig passage has occurred. Also, a bright LCD backlight remains lit for a short period of time following a pig passage. In addition, the time of the most recent passage is clearly displayed on an LCD graphic display screen. If multiple pig passages have occurred, the times of the last 2 to 99 passages may be retrieved by simply scrolling back through the PIG-SIG NI^{XT} memory.

Features

The non-intrusive pig passage indicator provides bi-directional detection of pigs equipped with TDW trip magnets or carbon steel cleaning brushes. Pig speeds can range from 0.03 ft/s (0.01 m/s) to 65 ft/s (20 m/s).

The PIG-SIG NI^{XT} fits 4- through 72-inch (102 mm -1800 mm) line sizes and works on steel pipe wall thicknesses up to 1.5 inches (38.1 mm). All standard units can operate on two standard 1.5-volt D-cell alkaline batteries or can be hard-wired to 24 VDC external power. Operating temperatures (at the pipeline's exterior surface) can range from -40° F to 176° F (-40° C to 80° C). The unit must be hard-wired at temperatures below -4° F (-20° C) or above 130° F (54° C). A heater option is necessary for the LCD display to operate at temperatures below -22° F (-30° C).

All standard units include two LED lights for long-distance viewing and a graphic display with pig passage times. Also, any unit may be wired for communication with a control room or operator's SCADA system. The PIG-SIG NI^{XT} electrical circuitry utilizes a double-pole, double-throw isolated contact closure momentarily triggered and automatically reset after a pig passage. A maximum operating current of 2 amps at 30

VDC may be applied to the contact closure. The pig signaler is equipped with a field wiring box with a 3/4" NPT female conduit port. A detachable terminal block inside the box allows for quick and easy wiring to external power and remote wired communication.

The standard PIG-SIG NI^{XT}, which may operate on batteries or 24 VDC power and communicate with a SCADA interface, is easily portable at a weight of only 10 pounds. A lock switch prevents false pig detections when the unit is powered on and transported to another location on a pipeline. Only 3.5 x 3.5 inches of space is required on the pipeline surface for mounting of the device.

The PIG-SIG NI^{XT} is fully certified for hazardous locations requiring explosion-proof devices. The mounting base and custom turnbuckle for attachment to the pipe are constructed from 316 stainless steel. Each unit will be provided with an appropriate length of epoxy-coated galvanized steel chain corresponding to the size of the pipe (see table on page 2 for lengths needed).

For buried pipelines, rigid extensions of up to 15 feet in length can be provided (see table on page 2 for standard extension lengths available). Like the mounting base, rigid extensions will be constructed from 316 stainless steel for maximum corrosion protection. Flexible extensions up to several hundred feet in length may also be provided for direct burial applications.

MET Listing Number (NRTL Listing for USA and Canada):
E113028

Complies with:
UL 1203, UL 60950-1, UL 50, UL 50E, CSA 22.2 No. 30,
CSA 22.2 No. 60950-1, EN 60950-1 & EN 60529

Certified for Hazardous Locations:
CLASS I, DIVISION 1, Groups C, D
CLASS II & III, DIVISION 1, Groups E, F, G

Enclosure Protection:
NEMA 4X, IP 66

ATEX Approved
CE 0891 TRAC10ATEX21257X
II 2 G Ex d IIC T5
II 2 D Ex ID A21 IP66 T100°C

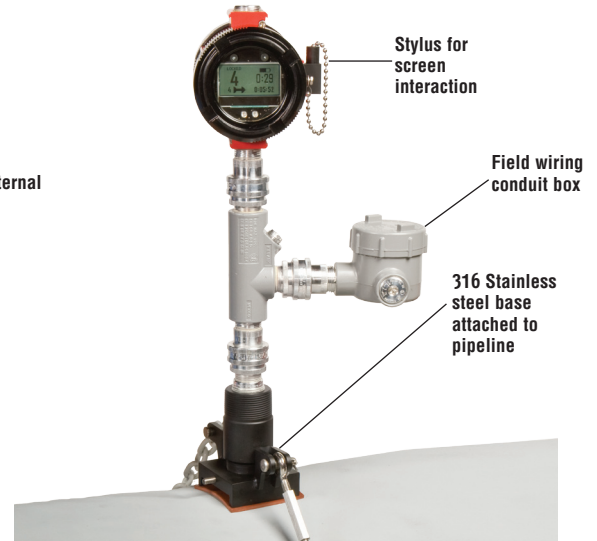
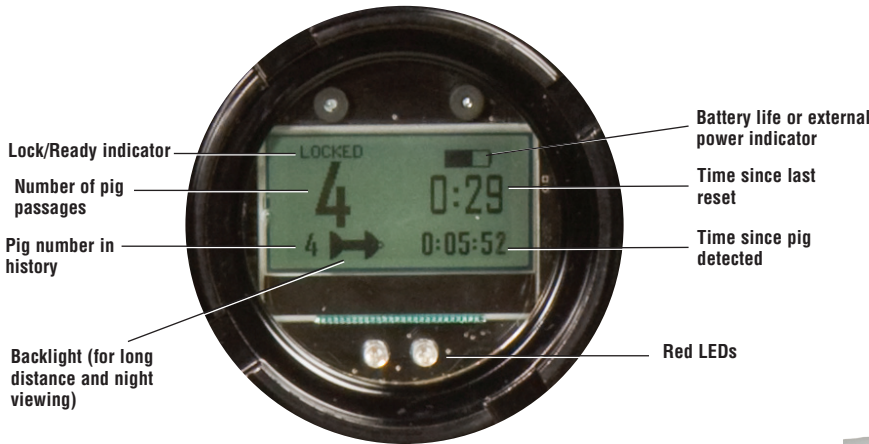
Patent pending in the United States and in foreign countries.

USA: 1-800-571-7447
England: (44) 1-793-603600



PIG-SIG[®] NI^{XT} Non-intrusive Pig Passage Indicator

The high-contrast LCD screen gives the operator a clear view of the time of pig passage.



Standard Unit (2 D-Cell alkaline batteries or 24 VDC external power)

Total Height		Extension		Part Number	Weight	
Inches	mm	Inches	mm		Lbs.	Kg.
19	483	Standard	Standard	04-3973-0100-00	11	5.0
31	787	12	305	04-3973-0101-00	14	6.4
43	1092	24	610	04-3973-0102-00	17	7.7
55	1397	36	914	04-3973-0103-00	20	9.1
67	1702	48	1219	04-3973-0104-00	23	10.4
79	2007	60	1524	04-3973-0105-00	26	11.8
91	2311	72	1829	04-3973-0106-00	29	13.2
103	2616	84	2134	04-3973-0107-00	32	14.5
115	2921	96	2438	04-3973-0108-00	35	15.9
127	3226	108	2743	04-3973-0109-00	38	17.2
139	3531	120	3048	04-3973-0110-00	41	18.6
151	3835	132	3353	04-3973-0111-00	44	20.0
163	4140	144	3654	04-3973-0112-00	47	21.3
175	4445	156	3962	04-3973-0113-00	50	22.7
187	4750	168	4267	04-3973-0114-00	53	24.0
199	5055	180	4572	04-3973-0115-00	56	25.4

Mounting Chain

Pipe Size inches	Chain Length Needed (feet)	Part* Number
4 to 6	2	04-3974-3004-00
8 to 10	3	
12 to 14	4	
16 to 18	5	
20 to 22	6	
24 to 26	7	
28 to 30	8	
32 to 34	9	
36 to 38	10	
40 to 44	12	
46 to 52	14	
54 to 60	16	
62 to 68	18	
70 to 76	20	

*Indicate quantity in feet when ordering.
Pipe size determines chain length required.



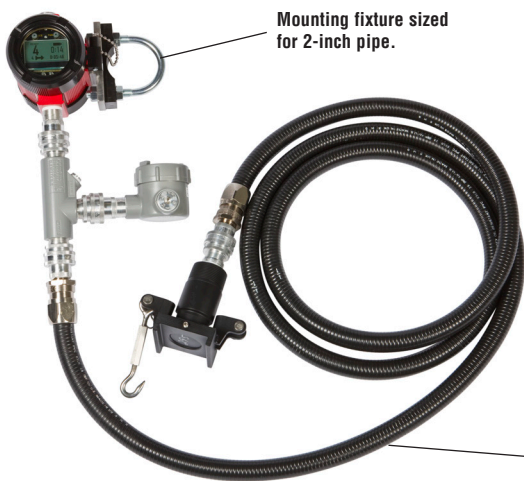
PIG-SIG® NI^{XT} Non-intrusive Pig Passage Indicator

04-3973 - **AA****BB** - 00

AA

BB

01 = Standard unit (with rigid extension if applicable)	Extension length (in feet)
02 = Standard unit with LCD heater (for temps to -40° F)	No extension, then BB = 00
05 = Unit with flexible extension	If greater than 99 ft, use alphanumeric:
06 = Unit with flexible extension and LCD heater	A0 = 100 ft, A1 = 101 ft, A2 = 102 ft, etc.
07 = Portable unit (no field wiring box)	B0 = 110 ft, B1 = 111 ft, B2 = 112 ft, etc.
	C0 = 120 ft, C1 = 121 ft, C2 = 122 ft, etc.
	D0 = 130 ft, D1 = 131 ft, D2 = 132 ft, etc.
	E0 = 140 ft, E1 = 141 ft, E2 = 142 ft, etc.
	F0 = 150 ft, F1 = 151 ft, F2 = 152 ft, etc.
	(GX = 16X, HX = 17X, IX = 18X, JX = 19X, KX = 20X, LX = 21X, etc.)



PIG-SIG® NI^{XT} Non-intrusive Pig Passage Indicator with flexible extension

Direct burial flex conduit (fully certified for hazardous locations)



PIG-SIG® NI^{XT} Non-intrusive Pig Passage Indicator with no field wiring box (Portable unit).



PIG-SIG® NI^{XT} Non-intrusive Pig Passage Indicator

Replacement Parts and Accessories	Part Number
Carrying Case for Standard Unit	04-3575-0018-00
Carrying Case for Portable Unit	04-3575-0020-00
Standard Mounting Base	04-3974-2200-00
Custom Turnbuckle	04-3974-2400-00
Clevis Pin (for mounting)	04-3974-2700-00
Epoxy-Coated Chain (for mounting)	04-3974-3004-00*
Standard Mat (for mounting surface)	04-3974-3007-00
Set Screw	04-3974-3008-00
Mounting Assembly (includes standard mounting base, turnbuckle, set screw, clevis pins and rubber mat)	04-3974-5100-00
Large Mounting Base (included with rigid extended units 5-feet and higher)	04-3974-5101-00

*Pipe size determines chain length (see page 2).

TDW Trip Magnets

TDW PIG-SIG® NI^{XT} trip magnets are high-strength, rare-earth, permanent magnets which have been potted into a PVC or anodized aluminum outer shell. Each one has an integral 1/2-inch UNC stainless steel mounting stud. TDW PIG-SIG® trip magnets are supplied in three sizes: TM-S for pigs up to 12-inches, TM-M for pigs 14- thru 30-inches, and TM-L for pigs 32- thru 48-inches. For pipes above 48-inch in O.D., custom trip magnets can be designed. Other types of trip magnets can be provided to suit customer needs. Standard trip magnets are rated up to 80° C / 176° F.

TDW PIG-SIG NI^{XT} trip magnets will work effectively on virtually any brand or type of mechanical pig except spheres. Generally, the TDW PIG-SIG NI^{XT} trip magnet should be mounted at or near the longitudinal axis of the pig, where it is not surrounded by metal. The long axis of the magnet should be along the central axis of the pig.

On certain types of non-metallic pigs, the magnet can be placed within the body, such as TDW's OptionAll™ pigs. On foam pigs with built-in transmitter

cavities, the magnet can be placed inside the cavity. On foam pigs without transmitter cavities, the magnet can be placed inside a hole that the user cuts into the rear of the pig. RTV Silicone may be used to seal the opening. For internal mounting dimensions, refer to the chart below.

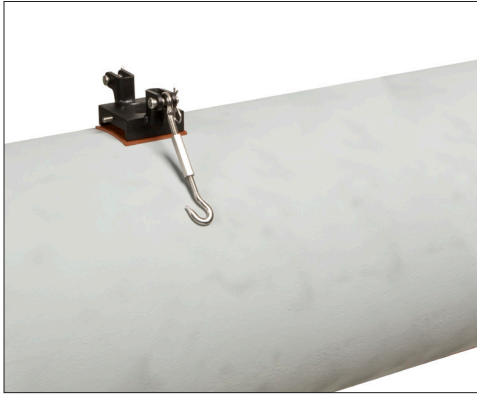
On small, mandrel-body type pigs, such as TDW's WCK Pig, it will be necessary to modify the rear of the pig to add a special mounting bracket to accept the magnet. On large-bodied pigs, such as TDW's VANTAGE® Pig, a simple mounting plate can be added to the rear of the pig. The TDW PIG-SIG NI^{XT} trip magnet requires a 0.562-inch diameter mounting hole for attachment to a bracket or plate and should be secured with a 1/2-inch UNC lock-nut.

The exact mounting component will vary from pig to pig. If the user cannot determine a suitable mounting, contact TDW and we may be able to supply mounting parts for any brand or type of pig. Customs magnet designs (higher temperature, different shape/size) are always available upon request.

Dimensions and Part Numbers

Trip Magnet	Pipe Size		Diameter		Length		Weight		Part Number
	Inches	mm	Inches	mm	Inches	mm	Lbs.	Kg.	
TM-S	up to 12	up to 305	1.32	34	4.73	120	1.5	0.7	04-3974-0100-00
TM-M	14 to 30	355 to 762	1.32	34	7.73	197	3	1.4	04-3974-0200-00
TM-L	32 to 48	800 to 1220	1.32	34	12.73	324	5	2.3	04-3974-0300-00

PIG-SIG[®] NI^{XT} - 5 Easy Steps to Install:



■ 1. Place pad on pipeline and base on top of pad.



■ 2. Wrap chain around pipe and connect using hook on end of turnbuckle.



■ 3. Tighten turnbuckle using wrench.



■ 4. Thread device (unit) assembly into base.



■ 5. Tighten set screw in base.

The above does not reflect full installation procedures. For full procedures, refer to instructions provided with PIG-SIG[®] NI^{XT} unit.



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