TANGO™ TX1

By wearing the Tango™ TX1, your workers will be the safest single gas monitor users in the world.

INDUSTRIAL SCIENTIFIC

The Gas Detection People

“Do you want a chance to change the world?”

- Steve Jobs, Apple®

“Most gas detection companies make only incremental changes to their products.”

- Kent McElhattan, Chairman, Industrial Scientific Corporation

Early Methonometer ends flame safety lamp

1981

1985

Early O_2 and Methane two-gas instrument

First commercially viable docking station

1999

2002

First six-gas instrument

Continued advancement with iNet Control

2009

Bump Test & Calibration Recommendation

Gas detection instruments are potential life-saving devices. Recognizing this fact, Industrial Scientific Corporation recommends that a functional ("bump") test be performed on every instrument prior to each day's use. A functional test is defined as a brief exposure of the monitor to a known concentration of gas(es) for the purpose of verifying sensor and alarm operation and is not intended to be a measure of the accuracy of the instrument.

Industrial Scientific further recommends that a full instrument calibration be performed using a certified concentration(s) of calibration gas(es) monthly to ensure maximum accuracy.

If an instrument fails to operate properly following any functional "bump" test, a full instrument calibration should be performed prior to use.

Customer Pains:
Bump Testing

Specific Examples

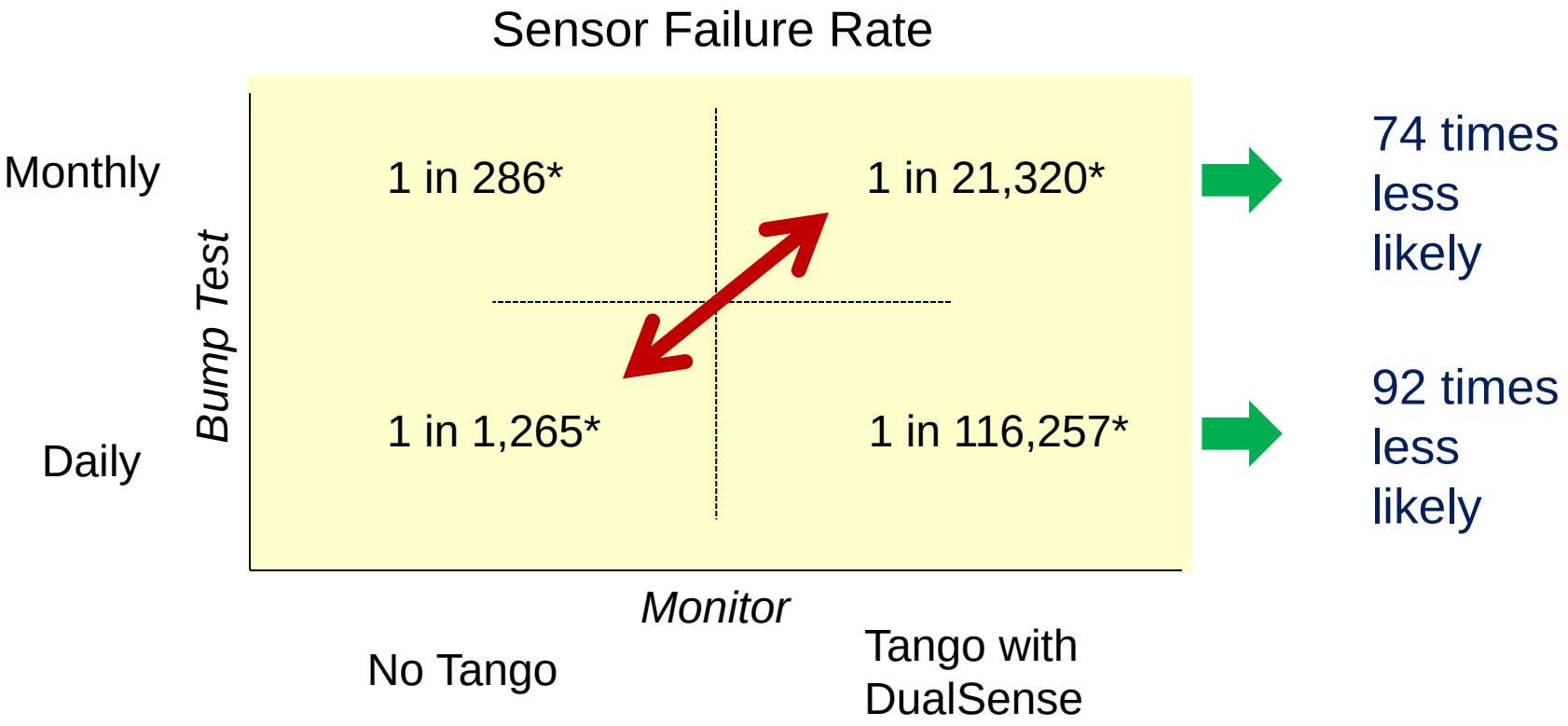
- “We have 900 single gas instrument with only 7 docking stations. We do not have enough docking stations to properly bump test our instruments.”
- “We only do weekly bump tests. We don’t have the manpower to comply with your current bump test policy.”
- “We recommend that they bump test before each day’s use, but our instruments are scattered throughout our facility and there is no easy way to get them all to a docking station.”

DualSense™ Technology

What is DualSense™ Technology?

DualSense Technology uses two of the same type sensors for detection of a single gas. Readings are then passed through a proprietary algorithm and a single instrument reading is displayed.

DualSense Technology Increases Gas Detector Reliability



Even if the Tango is never bump tested, it is still safer than any other single gas instrument that is bump tested daily.

*Analysis is based on over 2.2 million bump tests and over 100,000 unique sensors logged in iNet.

DualSense Technology Increases Gas Detector Reliability

We have data available from 80,000+ instruments on iNet.

Because of this service, we have a keen awareness into the data behind the instruments:

- On average, gas detectors go into alarm once every 10 days.
- On average, gas detectors are bump tested every 51 days even though recommendation is before each day's use.
- The most frequent failure mode for an instrument not passing bump test or reading gas is a dead or malfunctioning sensor.

For these reasons, we created the Tango!

New Bump Test Recommendation

Instruments without DualSense Technology:
Based on the data in Figure 1, Industrial Scientific recommends that a bump (functional) test be performed prior to each day's use for all instruments without DualSense Technology. If conditions do not permit daily testing, bump tests may be done less frequently based on instrument use, exposure to gas, and environmental conditions. The frequency of testing of instruments without DualSense Technology is best determined by company policy or local regulatory agencies.

Instruments with DualSense Technology:
Regardless of bump test frequency (from daily to monthly), Industrial Scientific's instruments with DualSense Technology are safer than traditional instruments without the technology. The frequency of bump testing for instruments with DualSense Technology is best determined by company policy or local agencies based upon regulatory, environmental and other company-specific factors. These conclusions and recommendations are based on field data, safe work procedures, industry best practices and regulatory standards to ensure worker safety.

Industrial Scientific further recommends that **full instrument calibration be performed using a certified concentration(s) of Industrial Scientific calibration gas(es) monthly**, at a minimum, to ensure accuracy. Use of calibration gases from manufacturers other than Industrial Scientific may void product warranties and limit liability claims against the manufacturer.

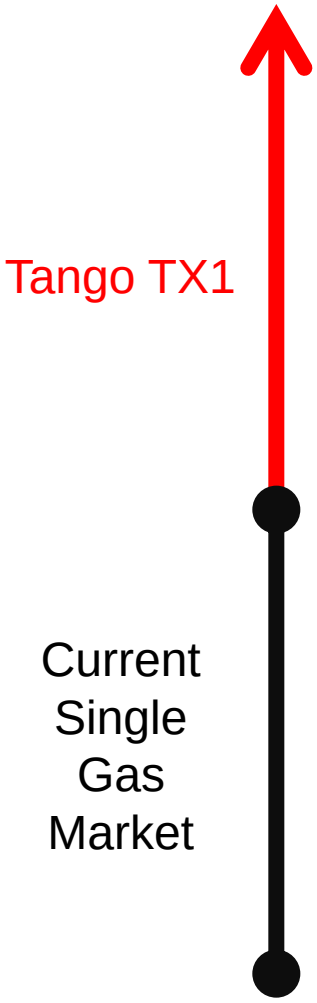
New recommendation to take effect when Tango is released.

Competitive Bump Test Matrix

Instrument	Bump Test Recommendations	Calibration recommendations
Tango TX1	User selectable	Monthly
GasBadge Pro	Before each days use	Monthly
GasBadge Plus	Before each days use	Monthly
BW GAC	Periodic	Cannot calibrate
BW GAC 3 Year	Periodic	Cannot calibrate
MSA Altair Pro	Before each days use	Only if fails bump test
Sperian ToxiPro	Before each days use not to exceed 30 days	Only if it fails bump test
RKI SC-01	Not provided	Daily use: weekly to monthly Few times a year – before use. Typical 1 to 3 months.
GasClip	Not to exceed 90 days	Cannot calibrate

A more comprehensive bump and calibration comparison is in development and will be available shortly.

Safety Level Game Changer



Strong Safety Culture – Bump test daily, iNet customers, Review data regularly

Contractor Market – Do not bump test, will never adopt iNet, has little to no interest in data

Customer Pains:
Replacing Batteries in the Field

Specific Examples

- “We would like to have a minimum of three-year runtime. BW only last for two years and the GasBadge Pro battery needs changed every three months.”

- “My plant employees are forbidden to open the instruments and change out batteries. We have a contract with a service company to provide this service.”

- “My team and I devote hours to changing batteries in our single gas instruments.”

Three-Year Runtime

The instrument is designed to operate continuously in the "always-on" mode for three years*.

Tango has been designed to operate with one field replaceable 3.6 V Lithium-thionyl chloride battery.

*Operating conditions, the amount of alarm time, and other environmental factors could reduce the overall runtime of the battery.

Unique and comprehensive battery end-of-life indication:

- With 96 hours or less of instrument life remaining, the instrument will produce an audible "chirp" and a visual flash indication.
- When the instrument can no longer support proper instrument operations, the unit will display a battery fail indication along with an audible and visual indication for 10 minutes.
- The LED will flash periodically for an additional 24 hours at a minimum as a further indication that the battery needs changed.

Customer Pains: Audible Alarm

Specific Examples

- “The GasBadge Pro is not loud enough. We need a stronger audible alarm notification.”

- “We have had incidents in our plant where a GasBadge Pro was in alarm for up to an hour without the user being aware. We are contemplating looking at getting our Drager PacIII back online and transition out the GasBadge Pro because of this issue. Do not approach me with another single gas instrument unless it is significantly louder than the GasBadge Pro!”

Tango Alarm -100dB at 10cm

Tango Audible Alarm vs. GasBadge Audible Alarm @ 40cm

	GasBadge Audible Alarm	Tango Audible Alarm	Advantage
Front	76dB	85dB	2 Times Louder
Top	58dB	78.5dB	4 Times Louder
Frequency	2725 Hz	3770 Hz	Significantly higher pitch

Patent pending sound enhancing cover (AlarmAmp™) increases the dB rating from both the top and the front by 10+ dB.

10dB = twice as loud to the human ear

Warranty

Industrial Scientific Corporation's Tango TX1 single gas monitor is warranted to be free from defects in material and workmanship under normal and proper use and service for 3 years from the initial purchase date.

The above warranty does not include the sensors, battery, or filters, but the sensors carry their own separate warranty. The factory-installed sensors are warranted to be free from defects in material and workmanship under normal and proper use and service as follows, except where otherwise stated in writing in Industrial Scientific literature accompanying the product:

- CO and H_2S sensors are warranted for 3 years from the initial purchase date
- All other sensors are warranted for 2 years from the initial purchase date

Target Industries

The Tango is the ideally suited for the oil & gas, petrochemical, metal production and fire service markets. These markets often demand a single gas instrument that is full featured and still affordably priced. With solutions like DualSense Technology, 3-year lifespan, and iNet, the Tango will be well positioned to provide these markets the safest and most feature rich product available, while reducing maintenance burdens.

List of Key Target Industries

- Oil & Gas
- Petrochemical
- Metal Production
- Fire Services
- Chemical Producers
- Mining (Metal/Non-Metal & Coal)
- Pulp & Paper
- Pharmaceuticals

Competitive Product Matrix

Instrument	Three-Year Warranty (CO and H2S)	Three Years, Always on, Replaceable Battery*	User Selectable Color Faceplates	DualSense Technology	iNet Compatible	Price
Tango TX1	Yes	Yes	Yes	Yes	Yes	$265.00
GasBadge Pro	No	No	No	No	Yes	$375.00
GasBadge Plus	No	No	No	No	Yes	$125.00
BW GAC	No	No	No	No	No	$189.00
BW GAC 3 Year	Yes	No	No	No	No	$275.00
MSA Altair Pro	No	No	No	No	No	$408.00
Sperian ToxiPro	No	No	No	No	No	$329.00
Drager PAC 7000	Yes	No	No	No	No	$399.00
RKI SC-01	No	No	No	No	No	$695.00
GFG Micro IV	Yes	No	No	No	No	$415.00

** **BW GAC** – 2 years, always on, non-replaceable lithium battery; **BW GAC –** 3 years, always on, non-replaceable lithium battery; **MSA Altair Pro** – 9,000 hours, always on, replaceable lithium battery; **Sperian ToxiPro** – 9,000 hours, always on, replaceable lithium battery**; Drager Pac 7000** – 5,500 hours, always on, replaceable lithium battery for CO and H_2S;*
***RKI SC-01** – 250 hours, always on, replaceable 2 AA alkaline batteries;*
***GFG Micro IV** – 3,000 hours, always on, replaceable AA alkaline.*

Specifications

Display:	Segmented LCD
Keypad buttons:	Two buttons
Case materials:	Case top: Polycarbonate with a protective overmold Case Bottom: Conductive polycarbonate
Alarms:	Visual: Three strobe-emitting visual alarm LEDs (two red, one blue) Audible: 100 decibel (dB) audible alarm at 10cm (3.04”) typical Vibrating alarm
Size:	99 x 51 x 35 mm (3.0” x 2.0” x 1.4”)
Weight:	126.0 g (4.4 oz.) typical
Temp range:	-20°C to +50°C (-4°F to +122°F)

Current Approvals

ATEX	Ex ia I Ma Ex ia IIC T4 Ga Equipment Group and Category: I M1 and II 1G
IECEx	Ex ia I Ma Ex ia IIC T4 Ga
UL (C-US)	Class I, Groups A, B, C, and D; Class II, Groups E, F, and G; T4; Exia Class I, Zone 0, AEx ia IIC T4

ISO14001 Certification

The Tango supports sustainability. We are required to minimize waste streams in the effort of continuous improvement on environmental stewardship. The Tango's replaceable battery and sensors enable continued operation, and therefore is a more environmentally responsible solution.

Pending Approvals

Country/Region	Mark	Area Classification	Est. Delivery
Canada	CSA	Class I, Division 1, Groups A B C D; T4	Q1FY13
Canada	CSA	Ex ia IIC T4; Zone 0	Q1FY13
US	MSHA	Permissible Gas Monitor	Q3FY13
Europe	EN 45544	Toxic Performance; region of limit	Q4FY13
Australia	ANZEx	Ex ia I/IIC T4; Zone 0	Q2FY13
Australia NSW	MDR	Tox Performance	Q3FY13
Australia NSW	MDR	NSW I&I EMC Requirements	Q3FY13
China EX	China Ex	Ex ia IIC T4; Zone 0	Q1FY13
China	CPC	Metrology Approval	Q3FY13
China	CMA	Ex ia I	Q3FY13
Korea	KOSHA	Ex ia IIC T4; Zone 0	Q2FY13
Brazil	INMETRO	Ex ia IIC T4; Zone 0	Q2FY13
Kazakhstan	GOST-K	Ex ia IIC T4; Zone 0	Q3FY13
Russia	GOST-R	Ex ia IIC T4; Zone 0	Q3FY13

Sensor Specifications

Sensor Type	Range	Resolution	Accuracy at Temp.	T50 Response time	T90 Response time
Carbon Monoxide (CO)	0 to 1000 ppm	1 ppm	± 5.0%	12 Seconds	48 Seconds
Hydrogen Sulfide (H_2S)	0 to 200.0 ppm	0.1 ppm	± 5.0%	12 Seconds	30 Seconds
Nitrogen Dioxide (NO_2)	0 to 150.0 ppm	0.1 ppm	± 10.0%	10 Seconds	30 Seconds
Sulfur Dioxide (SO_2)	0 to 150.0 ppm	0.1 ppm	± 10.0%	20 Seconds	80 Seconds

Part Numbers & Pricing

Description	Part Number	USD Standard List Price	EUR Standard List Price	GBP Standard List Price	AUD Standard List Price	CNY Standard List Price
Tango Carbon Monoxide (CO)	TX1-1	$265.00	€200.00	£165.00	$305.00	¥3,870.00
Tango Hydrogen Sulfide (H_2S)	TX1-2	$265.00	€200.00	£165.00	$305.00	¥3,870.00
Tango Nitrogen Dioxide (NO_2)	TX1-4	$395.00	€300.00	£245.00	$455.00	¥5,770.00
Tango Sulfur Dioxide (SO_2)	TX1-5	$395.00	€300.00	£245.00	$455.00	¥5,770.00

Tango is not available for oxygen monitoring at this time. The GasBadge Pro is the single gas oxygen monitoring solution.

Accessories

iNet DS Docking Station
Available with subscription to iNet or iNet InSite

5 Optional Faceplates

Black Faceplate	P/N 17154916
Green Faceplate	P/N 17154917
Yellow Faceplate	P/N 17154918
Blue Faceplate	P/N 17154919
White Faceplate	P/N 17154920

	USD	CAD	EUR	GBP	CNY	AUD
All Faceplates	3.00	3.00	2.00	2.00	44.00	3.00

Accessories

AlarmAmp (Black)* P/N 17154915

	USD	CAD	EUR	GBP	CNY	AUD
AlarmAmp	20.00	20.00	15.00	13.00	292.00	23.00

Optional Belt Clip P/N 17120908

	USD	CAD	EUR	GBP	CNY	AUD
Belt Clip	6.00	6.00	4.00	4.00	100.00	7.00

Soft Nylon Carrying Case (Orange) P/N 18109171

	USD	CAD	EUR	GBP	CNY	AUD
Case	40.00	40.00	29.00	25.00	584.00	46.00

AlarmAmp™

*Orange and additional colors in development

Accessories

Dust Barrier Kit (Package of 5) P/N 18109218

	USD	CAD	EUR	GBP	CNY	AUD
Dust Barrier Kit	12.00	12.00	9.00	8.00	175.00	14.00

Water Barrier Kit (Package of 5) P/N 18109230

	USD	CAD	EUR	GBP	CNY	AUD
Water Barrier Kit	20.00	20.00	15.00	13.00	292.00	23.00

3.6V Battery P/N 17154367

	USD	CAD	EUR	GBP	CNY	AUD
Battery	7.00	7.00	5.00	4.00	44.00	8.00

Walk Around

On/Off Mode Button

On/Off Mode Button

Enter Button

On/Off Mode Button

Enter Button

Audible Alarm

On/Off Mode Button

Enter Button

Audible Alarm

Display

On/Off Mode Button

Enter Button

Audible Alarm

Display

Infrared Data Port

On/Off Mode Button

Enter Button

Audible Alarm

Display

Infrared Data Port

Visual Alarm

On/Off Mode Button

Enter Button

Audible Alarm

Display

Infrared Data Port

Visual alarm Indications

Sensor Covers

On/Off Mode Button

Enter Button

Audible Alarm

Display

Infrared Data Port

Visual alarm Indications

Sensor Cover

Molded Case

On/Off Mode Button

Enter Button

Audible Alarm

Display

Infrared Data Port

Visual alarm Indications

Sensor Cover

Concussion-Proof Overmold

Configuration Options

Configuration Menu

Zero – Zero's sensors to fresh air

Low Alarm – Sets the low alarm

High Alarm – Sets the high alarm

TWA Alarm – Sets TWA alarms

TWA Interval – Changes the interval value for TWA

STEL Alarm – Changes the STEL alarm value

Configuration Options

Configuration Menu

Calibration Gas – Sets the calibration gas

Clock Set – Sets the instrument time

Date Set – Sets the instrument date

Display Mode – Shows display in text or numeric

Confidence Indicator – Allows for turning on/off a confidence indication

Confidence Indication Type – Allows for setting either an audible, visual or both indications

Configuration Options

Configuration Menu

Bump Test In Field – Allows bump test by the user

Bump Due Warning – Informs user bump test is due

Bump Test Time Set-Point – Sets how often a bump test should be performed

Bump Test Percentage – Sets the percentage of bump gas the instrument is looking for within a particular time

Configuration Options

Configuration Menu

Bump Test Response Time – Sets how long the instrument will wait to see a % of the bump gas

Alarm Latch – Allows for latching or unlatching alarms

Vibration Alarm on/off – Allows the user to disable the vibrating alarm function

Zero in Field – Allows the user to zero the instrument

Calibration in Field – Allows the user to calibrate the instrument

Configuration Options

Configuration Menu

Calibration Due Alarm – Informs the user if calibration if due

Calibration Set-Point – Sets the interval when calibration is due

Code Set – Sets a security code before entry into configuration mode

Country of Origin – Allows for selecting one of 5 countries of origin

Configuration Options

Configuration Menu

Language Selection – Allows for selection of either English or French

Always On Selection – Allows the user to program the instrument to always stay on

Questions?

Thank You!