



VPAC II IS | Intrinsically Safe Through-Valve Loss Control Instrument

MISTRAS Group has taken the VPAC through valve loss control instrument to the next level. The VPAC II IS significantly simplifies asset maintenance and increases operation safety.

Created for use in hazardous environments such as oil, gas and petrochemical plants, power generating plants and offshore platforms, the VPAC II IS is a dedicated intrinsically safe acoustic leak instrument for through valve loss control.

Using the same technology and sensors as our successful VPAC, the VPAC II IS, for example, can determine the loss of hydrocarbons to flare in hazardous areas and save millions of dollars for the plants.

Starting with basic process information and type of valve, along with the measured Average Signal Level (ASL) from the instrument, VPAC II IS uses a proprietary algorithm to identify through-valve gas losses and estimates leak rate.

The user interface is simple and intuitive. The instrument is powered by a high capacity rechargeable battery lasting several weeks with typical use. The battery replacement on this handheld power device is quick and easy, and the unit retains all settings even when powered off, so downtime is minimal.

The VPAC II IS contains all the features you need to determine if valves are leaking and an estimation of the leak rate.

The features of the VPAC II IS include:

- Leak rate estimations right on the unit itself, based on stored valve information.
- Low noise electronics to achieve the required dynamic range for valve monitoring.
- Storing a reading on the valve, as well as upstream and downstream readings
- Measurement mode displays the real-time reading on current valve
- Loading a testing route complete with valve names and physical properties from VPACwin.
- The ID mode enables the user to select an active valve and view its parameters.
- Transferring all stored data to VPACwin via the Bluetooth interface
- Meets the requirements of EPA 40 CFR 98 mandatory tracking and reporting of greenhouse gases

Savings in the Millions

Statistical experience has shown that in oil and gas plants 5-10% of valves leak, but 1% of valves are responsible for 70% of total loss. Finding these valves and taking remedial action reduces annual losses by millions of dollars.

On plants with flare gas recovery systems the use of the system is even more important to avoid burning saleable product and hydrogen as fuel gas. Regular checking of product and hydrogen valves avoids this downgrading.

Savings Example

VOC losses AU\$9m (28,684 tonnes) [~US\$12m], cut to half (14,342 tonnes) in two years, cut to 4821 tonnes in three years.



Whitepaper:

Reducing Flare Loss Due to Through-Valve Leakage



Whitepaper:

VPAC know-how was further developed by a BP-Shell program for use on large ball valves in upstream shut-down service.

**Contact us today for
wireless through-valve
leak monitoring**

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VPAC II LEAK CALCULATION																	
Total Loss													\$9,899,841				
COMPANY:		LOCATION:			Date Created: 2/24/2011 3:02 PM				Contact:								
#	Valve ID	Signal Level	Up Stream	Down Stream	Pressure Difference	Int. Size	Valve Type	Seat Type	Valve Equation	Time of Test	Leak Rates	Fluid Density	Loss	Cost Per Ton	Total Loss		
					PSI	Bar				min	lbm/hr	kg/m ³	lb/yr	/ton	Per Valv \$/yr		
1	VALVE27	12			27	1.8	27 Ball	Hard	LIQUID LB	2/25/11 10:52 AM	3.4	7.2	54.2	1.30	2	\$550.00	\$1,284
2	ABC123	23			999	88.0	33 Ball	Soft	LIQUID LB	2/25/11 10:52 AM	0.3	1.2	2.2	0.01	1	\$400.00	\$400
3	FOOBAR1	25	30	21	118	8.0	9 Other	Hard	LIQUID LB	2/25/11 10:52 AM	0.3	0.6	4.6	1.30	0.2	\$122.00	\$24
4	BARBARA	56			45	8.1	15 Other	Hard	GAS LB	2/25/11 10:52 AM	389.1	788.8	5374.8	1.90	231	\$420.00	\$97,804
5	BOO-TOM	77			77	5.2	30 Ball	Hard	LIQUID LB	2/25/11 10:52 AM	140.3	297.3	2224.4	1.16	145	\$400.00	\$40,000
6	FOO-POO	32			65	4.4	13 Ball	Hard	GAS LB	2/25/11 10:52 AM	65.2	138.2	1034.0	1.15	394	\$420.00	\$16,560
7	FAA33	33			1234	83.9	11 Ball	Soft	LIQUID LB	2/26/11 10:52 AM	0.1	0.3	2.2	1.15	0.1	\$420.00	\$56
8	BARBIE1	41			1777	120.9	26 Ball	Soft	LIQUID LB	2/26/11 10:52 AM	0.8	1.7	13.1	1.15	0.5	\$420.00	\$210
9	BARBIE2	13			54	8.7	11 Ball	Soft	LIQUID LB	2/26/11 10:52 AM	0.5	1.0	7.2	1.15	0.3	\$420.00	\$136
10	BOO5	9			1112	75.6	8 Ball	Hard	GAS	2/26/11 10:52 AM	0.3	0.7	5.4	2.20	0.4	\$420.00	\$187
11	BARBARA99	15			86	6.0	6 Other	Hard	GAS	2/26/11 10:52 AM	1.9	4.0	29.8	2.20	0.5	\$420.00	\$210
12	BOO382	99			987	67.1	6 Gate	Hard	GAS	2/26/11 10:52 AM	22280.1	47180.3	352867.5	1.66	19421.0	\$500.00	\$9,780,936
13	DANT567	34			42	2.9	3 Gate	Hard	GAS	2/27/11 10:52 AM	32.6	65.1	517.0	1.66	268	\$500.00	\$13,073
14	—CN	25			48	3.3	8 Other	Hard	GAS	2/27/11 10:52 AM	6.1	12.0	86.4	1.66	106	\$500.00	\$5,300
15	BARBARA	56			65	4.4	4 Other	Hard	LIQUID	2/27/11 10:52 AM	4.4	9.2	69.1	2.07	4.7	\$420.00	\$2,041
16	BOO-32	65			58	3.7	3 Gate	Hard	LIQUID	2/27/11 10:52 AM	11.0	22.3	174.2	1.11	4.1	\$220.00	\$5,410

Key Features

- Large custom LCD backlit display
- Slide-in molded NiMH battery pack
- Small, rugged, ergonomic package
- Simple, intuitive user interface via a large button keypad
- Bluetooth data transfer

VPACWIN Software

- With a few simple mouse clicks, you can connect to your VPAC II IS via Bluetooth and transfer data to and from the unit.
- Automatically loads and formats all data transferred from VPAC II into a user-friendly spreadsheet.
- Calculated leak rates & total monetary loss per valve, per year.
- Route Management features enable the user to load a specific set of valves to be tested onto the unit.
- Entire databases of valves can be created and saved for future use.
- Saved results over time can be used for trending purposes.
- Save, load, print, & modify values in leak rate calculation spreadsheets.
- Firmware upgrades are supported over a Bluetooth interface
- 40 CFR 98 Results can be transferred from the unit into a spreadsheet that supports leak rate calculations for standard cubic feet per hour for EPA mandatory greenhouse gas reporting



VPAC II IS Package includes:

- The VPAC II IS unit
- Two D9203-IS sensors (VPAC sensor)
- Wave guide for the D9203-IS sensor
- Carrying case and carrying straps
- Bluetooth USB Mini Adapter
- VPAC II Rechargeable Battery Pack
- Battery charger with power adaptor and Replaceable plugs
- User Manual & VPACwin software
- USB License Key

VPAC II IS Specifications

Type

Details

Size: (LxWxH)	4.75" x 1.4" x 7"
Weight:	1 lb.
Power Source:	Nickel Metal Hydride Battery Pack
Battery Life:	> 100 Hours
LCD:	Transflective LCD on Glass
Backlight:	Blue LEDs with diffuser
Wireless Interface Type:	Bluetooth Class B
Wireless Interface Range:	50ft
Operating Temperature:	-15 -158°F (-20 - 55°C)
Storage Temperature:	-40 -185°F (-40 - 85°C)

Specifications for sensors

D9203-IS * High Frequency Response

Size:	0.9" x 0.8"
Temperature:	-20 - 55°C

Certifications



Ta=55°C
INTRINSICALLY SAFE FOR
CLASS I DIVISION 1
GROUPS A,B,C,D T3

-20°C ≤ Ta ≤ +55°C
Ex ia IIC T3 Ga
IECEX FMG24.0013X



II 1 G
FM24ATEX0015X