

Analogline

Analog Vacuum Transducers

ANALOGLINE



Analogline At a Glance

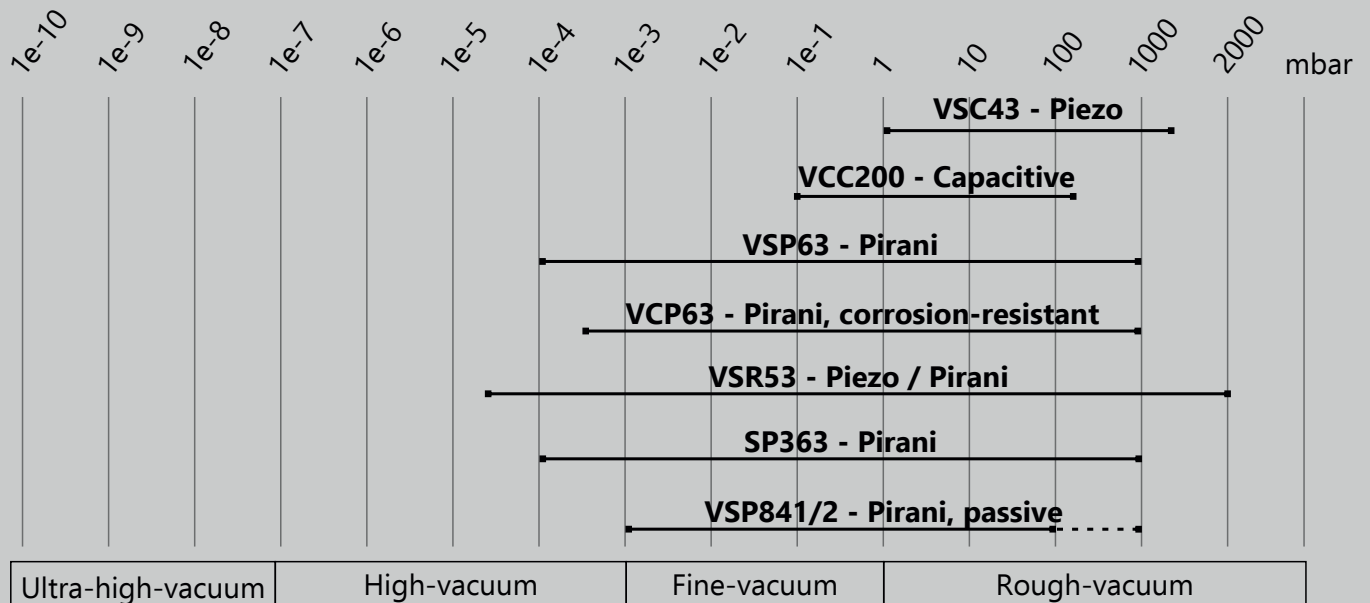
Re-Adjustment
at the push of a button

4-20 mA or
0-10 V output

Individual
temperature
compensation

Compact design

Robust stainless
steel housing



Analogline Features

Precise Transducers

Analogline transducers measure in a range of 2000 to $5e-5$ mbar (1500 to $5e-5$ Torr).

Individually temperature compensated and equipped with micro-processor control, the transducers achieve an outstanding accuracy and a high measurement stability.



Compact and economical

Analogline transducers meet the expectations of a diverse range of applications. Their small volumetric envelope makes them ideal for applications where space is at a premium. The compact transducers offer an optimum price-performance ratio.



Robust and reliable

Analogline transducers persist in rough industrial environments. In addition to their robust metal housing, the transducers are fitted with electrical plugs with IP54 protection class (4-20 mA models) or IP40 protection class (0-10 VDC models). A service with test certificate 3.1 for an extra high overpressure stability of 16 bar abs. is available for our Piranis.



Simple and smart re-adjustment

Thyracont made re-adjustment at atmospheric pressure and zero pressure both simple and amazingly smart.

Simple because it only involves the push of a button. Smart because the transducers automatically recognize which adjustment point is relevant.

Standard output signal

The linear or logarithmic output signal of the transducers (4-20 mA or 0-10 V) can be easily read out with a plant control system (PLC).



Controllers

Analogline transducers can be combined with the vacuum controllers VD6 (1 channel, for 4-20 mA transducers) and VD12 (up to two channels, for 0-10 V transducers). The controllers provide additional functions and serial interfaces.

Process control

The controllers have two configurable set points for comfortable process control.

Interfaces

The controllers feature a USB serial interface (VD6 and VD12) and a RS232 interface (VD12) for communication to the user's PLC or PC allowing a comfortable use of the VacuGraph™ software.



VacuGraph™ software

Parameters of the controllers (e.g. units, output characteristics, gas type correction factors, switching points, etc.) can easily be adapted with the help of Thyracont's VacuGraph™ software.

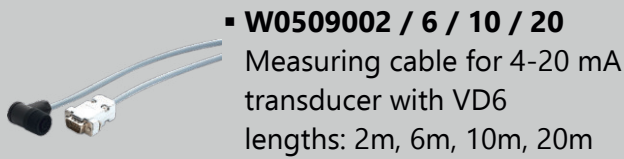
Data analysis

The VacuGraph™ software also enables simple visualization and analysis of the measured data. Inter alia, measuring curves can be compared or saved for quality management purposes.

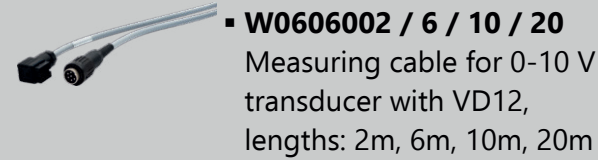
Practical tools

Features such as the calculation of leakage rates or pumping speeds complete the VacuGraph™ software.

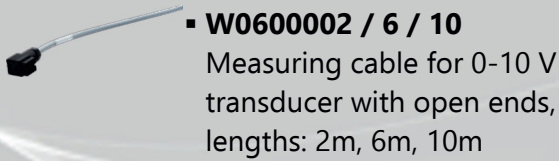
Analogline Accessories and services



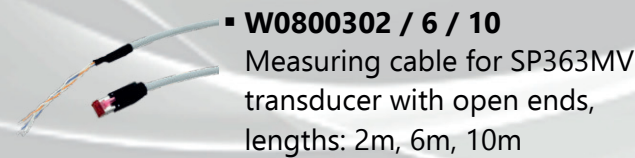
- **W0509002 / 6 / 10 / 20**
Measuring cable for 4-20 mA transducer with VD6
lengths: 2m, 6m, 10m, 20m



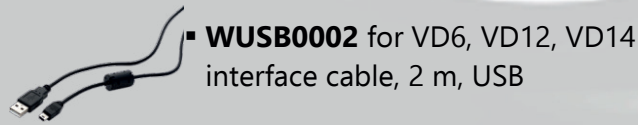
- **W0606002 / 6 / 10 / 20**
Measuring cable for 0-10 V transducer with VD12,
lengths: 2m, 6m, 10m, 20m



- **W0600002 / 6 / 10**
Measuring cable for 0-10 V transducer with open ends,
lengths: 2m, 6m, 10m



- **W0800302 / 6 / 10**
Measuring cable for SP363MV transducer with open ends,
lengths: 2m, 6m, 10m



- **WUSB0002** for VD6, VD12, VD14 interface cable, 2 m, USB

- **WRSJ0002** for VD12, VD14 interface cable, 2 m, RS232



- **XB0400005** mating plug, 4pole, for VSP521/522 and VSP841/842



- **XB0500004** mating plug, 5pole, for VSP63MA4



- **XB0600002** mating plug, 6pole, for VSP63MV/VSP64MV



- **VD81SW1** hose nozzle, brass, nickel, G1/4 male thread



- **VD8ANS** connection set, 1 tee DN16KF, 2 centering rings, 2 clamps



- **ZZCH016** centering ring DN 16 KF with baffle for sensor protection against contamination



- **ZZDF016** centering ring DN 16 KF with wire filter for sensor protection against contamination in the rough vacuum



- **ZSST016** spiral pipe DN 16 KF for protection against condensate and coating of the sensor



- **VGR VacuGraph™** software for Windows, Linux and MacOs, full version for download, single or triple license (VGRX3)



- **Calibration:**
 - **DCERT** works calibration
4 reference points per pressure decade
 - **DKDCERT**
DAkKS calibration

You will find additional accessories in our brochure for vacuum components.

Analogline Technical Data

	VSC	VCC	VSP
Measurement Principle	Piezo resistive, independent of gas type	Capacitive, independent of gas type	Heat conduction (impulse Pirani), dep. on gas type
Measuring Range	1400 - 1 mbar (1050 - 1 Torr)	200 - 0.1 mbar (150 - 0.1 Torr)	1000 - 1e-4 mbar (750 - 1e-4 Torr)
Max. Overload	4 bar absolute	6 bar absolute	10 bar absolute opt.: 16 bar abs. (with CERT31P)
Materials with vacuum contact	Stainless steel 1.4305, Al ₂ O ₃ , ceramic, FKM	Stainless steel 1.4305, Al ₂ O ₃ , ceramic, FKM	Stainless steel 1.4307, Tungsten, Nickel, glass
Accuracy	± 0.3 % full scale (nonlinearity, hysteresis, repeatability)	± 0.25 % full scale (nonlinearity, hysteresis, repeatability)	1000 - 20 mbar: < 30% f.r. 20 - 0.002 mbar: < 10% f.r.
Temperature Co-Eff.	-	< 0.04 % f.s. / 10 K	-
Repeatability	-	-	20 - 0.002 mbar: 2% f.r.
Setting Time	-	< 120 ms	-
Measuring Interval	10 ms	-	-
Response Time	<20 ms	-	< 200 ms
Power supply	15 - 30 VDC (VSC43MV) 9 - 30 VDC (VSC43MA4)	9 - 30 VDC	15 - 30 VDC
Electrical Connection	Type Hirschmann, 6pin, male, lockable (VSC43MV) M12 A, 5pin, male, lockable (VSC43MA4),	M12 A, 5pin, male, lockable	Type Hirschmann, 6pin, male, lockable (VSP63MV/VSP64MV) M12 A, 5pin, male, lockable (VSP63MA4)
Power Consumption	-	< 0.6 W	Max. 1.0 W with 24 VDC supply voltage (VSP63MV/VSP64MV) Max. 1.5 W with 24 VDC supply voltage (VSP63MA4)
Operating Temp.	+5...60 °C	+5...60 °C	+5...60 °C
Storage Temp.	-40...+70 °C	-40...+70 °C	-20...+70 °C
Bake Out Temp.	-	-	Max. 150°C at the flange (transducer separated from the voltage supply)
Output Signal	VSC43MV: 0 - 10 VDC, load > 10 Ω range 1.0 - 8.0 VDC, linear (5 mV/mbar) VSC43MA4: 4 - 20 mA, linear, max. load in Ω (supply voltage (V)- 9V) / 0,02 A	4 - 20 mA, linear, max. load resistor in Ω: (supply voltage [V] - 9) / 0.02	VSP63MV/VSP64MV: 0 - 10 VDC, load > 10 kΩ range 1.5 - 8.5 VDC, logarithmic (1V/decade) VSP63MA4: 4 - 20 mA, log.
Vacuum Connection	DN 16 KF with G1/4 female thread	DN 16 KF with G1/4 female thread	DN 16 KF (VSP63MA4, VSP63MV) DN 16 CF (VSP64MV)
Dimensions	66 x 30 x 30 mm (VSC43MV)	71 x 30 x 30 mm	66 x 30 x 30 mm (VSP63MV)
Protection Class	IP40 (VSC43MV) IP54 (VSC43MA4)	IP54	IP40 (VSP63MV, VSP64MV) IP54 (VSP63MA4)
Weight	Approx. 120g (VSC43MV) Approx. 120 g (VSC43MA4)	Approx. 170 g	Approx. 100 g (VSP63MV) Approx. 100 g (VSP63MA4)

Analogline Technical Data

	SP36	VCP	VSP passive
Measuring Principle	Heat conduction (impulse Pirani) dep. on gas type	Heat conduction (impulse Pirani) dep. on gas type	Pirani, dep. on gas type
Measuring Range	1000 - 1e-4 mbar (750 - 1e-4 Torr)	1000 - 5e-4 mbar (750 - 5e-4 Torr)	1000...100 - 1e-3 mbar (750... 75 - 1e-3 Torr)
Max. Overload	10 bar absolute opt.: 16 bar abs. (with CERT31P)	10 bar absolute opt.: 16 bar abs. (with CERT31P)	4 bar absolute
Materials with vacuum contact	Stainless steel, 1.4307, Tungsten, Nickel, glass	Stainless steel 1.4307, Nickel, glass, Filament: Platinum / Rhodium	Stainless steel 1.4305, Nickel, Tungsten, glass
Accuracy	1000 - 20 mbar: ca. 30% f. r. 20 - 2e-3 mbar: ±10% f. r.	1000 - 10 mbar: ca. 30% f.r. 10 - 0.01 mbar: ±10% f.r.	Dependent on evaluation circuit e.g. 10 - 1e-2 mbar: approx. 15 % f.r.
Temperature Co-Eff.	-	-	-
Repeatability	20 - 0.002 mbar: ±2% f.r.	10 - 0.01 mbar: ±5% f.r.	-
Setting Time	-	-	-
Measuring Interval	-	-	-
Response Time	-	< 200 ms	Approx. 200 ms
Power supply	15 - 30 VDC	15 - 30 VDC	Supply of bridge circuit according to circuit proposal
Electrical Connection	FCC68, 8pin, female thread	Type Hirschmann, 6pin, male thread, lockable	4pole circular plug binder 713, screwable
Power Consumption	Max. 1 W with 24 VDC supply voltage	Max. 1.5 W with 24 VDC supply voltage	Approx. 30 mA
Operating Temp.	+5...60 °C	+5...+60°C	+10...+40°C
Storage Temp.	-20...+70°C	-20...+70°C	-20...+80°C
Bake Out Temp.	Max. 150°C at the flange (transducer separated from voltage supply)	Max. 150°C at the flange (transducer separated from voltage supply)	80°C at the flange
Output Signal	0 - 10 VDC, load > 10 kΩ, range 1.0 - 10 VDC, log. (1.286V / decade)	VCP63MV: 0 - 10 VDC, load > 10 kΩ, range 2.2 - 8.5 VDC, log. (1V/decade) VCP63MA4: 4-20 mA, log.	Change of bridge voltage depending on vacuum
Vacuum Connection	DN 16 KF (SP363MV) DN 16 CF (SP364MV)	DN 16 KF	VSP841: DN 16 KF VSP842: 1/8"-NPT male thread
Dimensions	66 x 30 x 30 mm	66 x 30 x 30 mm	47 x 20 x 20 mm (VSP841)
Protection Class	IP40	IP40	IP65
Weight	Approx. 105 g (SP363MV)	Approx. 100 g	Approx. 60 g

Analogline Technical Data

VSR

Measuring Principle	Piezo resistive / heat conduction Pirani (Pirani depending on gas type)
Measuring Range	2000 - 5e-5 mbar (1500 - 5e-5 Torr)
Max. Overload	10 bar absolute
Materials with vacuum contact	Stainless steel 1.4307, tungsten, nickel, glass, silicon oxide, epoxy, SnAg
Accuracy	2000 - 200 mbar: < 2% from reading 200 - 40 mbar: < 5% from reading 40 - 2x10 ⁻³ mbar: < 10% from reading
Temperature Co-Eff.	-
Repeatability	2000 - 40 mbar: 0,1% from scale end 40 - 1x10 ⁻² mbar: 2% from reading
Setting Time	-
Measuring Interval	-
Reaction Time	< 18 ms
Voltage supply	12 - 30 VDC
Electrical Connection	Hirschmann, 6pole, male, lockable (VSR53MV, VSR54MV) M12 A, 5pole, male, lockable (VSR53MA4)
Power Consumption	< 0,3 W
Operating Temp.	+5...+60 °C
Storage Temp.	-40...+65°C
Bake Out Temp.	Max. 125°C at the flange (transducer separated from voltage supply)
Output Signal	VSR53MV/VSR54MV: 0 - 10 VDC, load > 10 kΩ Range 1,2 - 8,8 VDC, logarithmic (1V/decade) VSR53MA4: 4-20 mA, logarithmic
Vacuum Connection	Small flange DN 16 ISO-KF (VSR53MV, VSR53MA4) Conflat flange DN 16 CF-F (VSR54MV)
Dimensions	66 x 30 x 30 mm (VSR53MV)
Protection Class	IP54 (VSR53MA4) IP40 (VSR53MV, VSR54MV)
Weight	Approx. 100 g (VSR53MV)