



VLT® HVAC Basic Drive

Efficient, basic control of fans and pumps in HVAC applications



Optimized for basic operation of pumps and fans, the VLT® HVAC Basic Drive is supplied with built-in functions that reduce initial costs and increase productivity.

The drive is the most compact unit in its class. Integrated DC coils reduce harmonics to an absolute minimum, and the Automatic Energy Optimizer saves 15-25% energy from the second you turn the it on.

Product range:

- 3 x 200 – 240 V.....0.25 – 45 kW
- 3 x 380 – 480 V.....0.37 – 90 kW
- 3 x 525 – 600 V..... 2.2 – 90 kW

Available enclosure ratings:

- IP 20
- IP 21/NEMA UL Type 1 (separate option kit)
- IP 54

Feature	Benefit
All built-in – low investment	
Flying Start	Reduced mechanical wear on equipment
Most common HVAC protocols for BMS controller connectivity are embedded	Fewer extra gateway solutions needed
Built-in PI controller	No external PI controller required
Smart Logic Controller	Often makes PLC unnecessary
Integrated fan and pump functionality	Saves external control and conversion equipment
Fire Override Mode	Enhanced safety
Save energy – less operation cost	
Automatic Energy Optimizer function	Saves additional 5 – 15% energy
PM motor control in open loop	Increased efficiency especially at part load
Sleep mode	Saves energy and extends lifetime
Unequaled robustness – maximum uptime	
IP 20/IP 21/Type 1/IP 54	Enclosures to fit your needs up to 90 kW
Robust single enclosure	Maintenance-free
Unique cooling concept with no forced air flow over electronics	Problem-free operation in harsh environments
Max ambient temp. up to 50° C	No external cooling
User friendly – save commissioning and operating cost	
Operate both PM and asynchronous motors	Versatile, only one drive type required
Easy connectability	Effective commissioning and operation
Display in engineering units	Alpha numeric display/improved HMI
Start up wizard	Drive set-up fast and easy
Auto restart	Saves time and money
Bypass frequencies	Less noise and vibrations/resonances
Global HVAC support organization	Local service – globally
Built-in DC coils and EMC filters – no harmonic concerns	
Built-in EMC filter	Meets protection class C1, C2 or C3
Integrated DC Choke	Small power cables. Meets EN 61000-3-12
Thermistor input	Prevents motor overheating

PM

motor control

- asynchronous motor control as standard
- Increase flexibility and efficiency



Easy to configure

- Start up with a configuration wizard
- Easy to program parameters
- Alphanumeric display
- Hand – Off – Auto keys
- Status LCDs
- Easy to install
- Easy to wire up
- 7 languages and numeric programming



Choice made simple

- Enclosures: IP 20/Chassis or IP 21/NEMA UL Type 1 or IP 54
- Harmonic filters
- Minimum 25 m C3 as standard built-in
Optional: C1/C2 filters
- Voltage: 208/230/460/575

Dimensions

Frame	IP Class	Power (kW/HP)			Height (mm/inch)		Width (mm/inch)	Depth (mm/inch)
		3 x 200–240 V	3 x 380–480 V	3 x 525–600 V		Incl. decoupling plate		
H1	IP 20	0.25–1.5 kW/0.3–2 HP	0.37–1.5 kW/0.5–2 HP	–	195/7.7	273/10.7	75/2.9	168/6.6
H2	IP 20	2.2 kW/3 HP	2.2–4 kW/3–5.4 HP	–	227/8.9	303/11.9	90/3.5	190/7.5
H3	IP 20	3.7 kW/5 HP	5.5–7.5 kW/7.5–10 HP	–	255/10.0	329/13.0	100/3.9	206/8.1
H4	IP 20	5.5–7.5 kW/7.5–10 HP	11–15 kW/15–20 HP	–	296/11.7	359/14.1	135/5.3	241/9.5
H5	IP 20	11 kW/15 HP	18.5–22 kW/25–30 HP	–	334/13.1	402/15.8	150/5.9	255/10.0
H6	IP 20	15–18.5 kW/20–25 HP	30–45 kW/40–60 HP	18.5–30 kW/25–40 HP	518/20.4	595/23.4–635/25.0	239/9.4	242/9.5
H7	IP 20	22–30 kW/30–40 HP	55–75 kW/75–100 HP	37–55 kW/50–75 HP	550/21.7	630/24.8–690/27.2	313/12.3	335/13.2
H8	IP 20	37–45 kW/50–60 HP	90 kW/125 HP	75–90 kW/100–125 HP	660/26.0	800/31.5	375/14.8	335/13.2
H9	IP 20	–	–	2.2–7.5 kW/3–10 HP	372/14.6	374/14.7	130/5.1	205/8.0
H10	IP 20	–	–	11–15 kW/15–20 HP	475/18.7	419/16.5	165/6.5	249/9.8
I2	IP 54	–	0.75–4 kW/1–5.4 HP	–	332/13.1	–	115/4.5	225/8.8
I3	IP 54	–	5.5–7.5 kW/7.5–10 HP	–	368/14.5	–	135/5.3	237/9.3
I4	IP 54	–	11–18.5 kW/15–25 HP	–	476/18.7	–	180/7.1	290/11.4
I6	IP 54	–	22–37 kW/30–50 HP	–	650/25.6	–	242/9.5	260/10.2
I7	IP 54	–	45–55 kW/60–75 HP	–	680/26.8	–	308/12.1	310/12.2
I8	IP 54	–	75–90 kW/100–125 HP	–	770/30.3	–	370/14.6	335/13.2

Specifications

Mains supply (L1, L2, L3)	
Supply voltage	200–240 V ±10%
Supply voltage	380–480 V ±10%
Supply voltage	525–600 V ±10%
Supply frequency	50/60 Hz
Displacement Power Factor (cos φ) near unity	(> 0.98)
Switching on input supply L1, L2, L3	1 time/minute max.
Output data (U, V, W)	
Output voltage	0–100% of supply voltage
Switching on output	Unlimited
Ramp times	1–3600 sec.
Open/Closed loop	0–400 Hz
Digital inputs	
Programmable digital inputs	4
Logic	PNP or NPN
Voltage level	0–24 VDC
Analog input	
Analog inputs	2
Modes	Voltage or current
Voltage level	0 V to +10 V (scaleable)
Current level	0/4 to 20 mA (scaleable)
Analog output (can be used as digital output)	
Programmable analog outputs	2
Current range at analog output	0/4–20 mA
Relay outputs	
Programmable relay outputs	2 (240 VAC, 2 A and 400 VAC, 2 A)
Fieldbus communication	
Standard built-in: BACnet mstp FC Protocol	N2 Metasys FLN Apogee Modbus RTU

Danfoss VLT Drives

4401 N. Bell School Road
Loves Park, IL 61111, USA
Phone: 1 (800) 432-6367
1 (815) 639-8600
Fax: 1 (815) 639-8000
Email: salesinformation@danfoss.com
www.danfossdrives.com

Danfoss VLT Drives

8800 W. Bradley Road
Milwaukee, WI 53224, USA
Phone: 1 (800) 621-8806
1 (414) 355-8800
Fax: 1 (414) 355-6117

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.



Pressure transmitter for general purpose

Type MBS 1700

Features



- Enclosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) from 0 to 25 bar
- Output signal: 4 - 20 mA
- Pressure connections: G1/4 A, G1/2 A (EN837)
- Temperature compensated and laser calibrated

Description

The compact pressure transmitter MBS 1700 is designed for use as a general purpose transmitter, and offers a reliable pressure measurement, even under harsh environmental conditions.

Excellent vibration stability, robust construction, and a high degree of EMC/EMI protection equip the pressure transmitter to meet the most stringent industrial requirements.

Ordering

Measuring range P _e ¹⁾ [bar]	Output signal	Pressure connection	Code No.
0 - 6	4 - 20 mA	G 1/4 EN 837	060G6100
0 - 10			060G6101
0 - 16			060G6102
0 - 25			060G6103
0 - 6		G 1/2 EN 837	060G6104
0 - 10			060G6105
0 - 16			060G6106
0 - 25			060G6107

¹⁾ Relative / gauge
Plug: Pg 9 (EN 175301-803-A)

Technical data
Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)	±0.5% FS (typ.) ±1% FS (max.)
Non-linearity BFSL (conformity)	≤ ±0.2% FS
Hysteresis and repeatability	≤ ±0.1% FS
Thermal zero point shift	≤ ±0.1% FS/10K (typ.) ≤ ±0.2% FS/10K (max.)
Thermal sensitivity (span) shift	≤ ±0.1% FS/10K (typ.) ≤ ±0.2% FS/10K (max.)
Response time	< 4 ms
Overload pressure (static)	6 × FS (max. 1500 bar)
Burst pressure	> 6 × FS (max. 2000 bar)
Durability, P: 10-90% FS	>10×10 ⁶ cycles

Electrical specifications

Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U _B], polarity protected	9 → 32 V
Supply - current consumption	–
Supply voltage dependency	≤ ±0.05% FS/10 V
Current limitation	28 mA (typ.)
Output impedance	–
Load [R _L] (load connected to 0V)	R _L ≤ (U _B -9V)/0.02 A

Environmental conditions

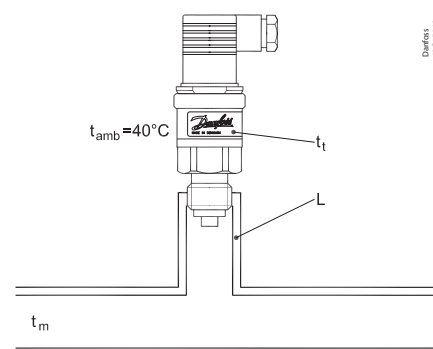
Media temperature range	–40 → +85°C		
Ambient temperature range	–40 → + 85 °C		
Compensated temperature range	0 → +80°C		
Transport temperature range	–50 → +85°C		
EMC - Emission	EN 61000-6-3		
EMC Immunity	EN 61000-6-2		
Insulation resistance	> 100 MΩ at 100 V		
Mains frequency test	SEN 361503		
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz-25 Hz	IEC 60068-2-6
		20 g, 25 Hz - 2 kHz	
	Random	7.5 g _{rms} , 5 Hz - 1 kHz	IEC 60068-2-64
Shock resistance	Shock	500 g / 1 ms	IEC 60068 - 2 - 27
	Free fall		IEC 60068 - 2 - 32
Enclosure	IP 65		

Mechanical characteristics

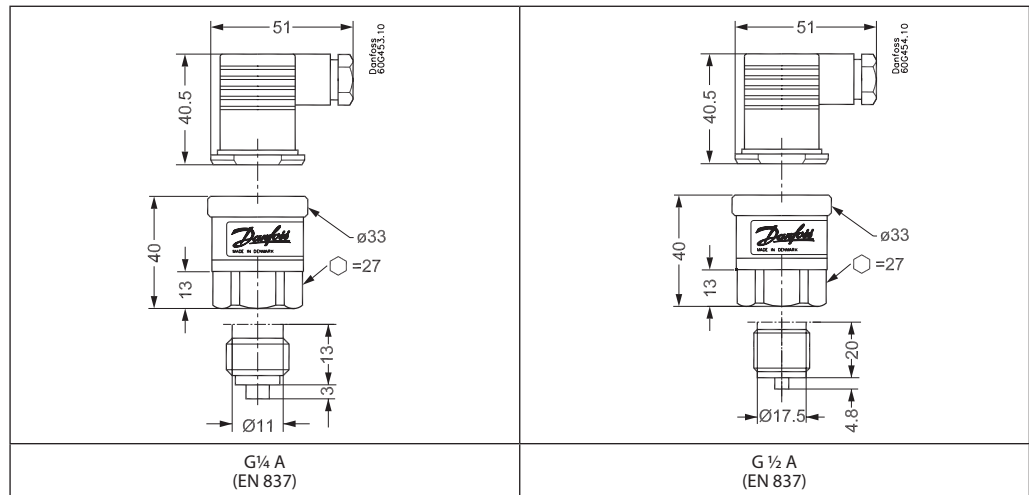
Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
	Electrical connections	Glass filled polyamid, PA 6.6
Weight	0.25 kg	

Guideline for temperature influence

Medium temperature (t _m), [°C]	Heat isolator (L), [cm]	Transmitter temperature (t _t), [°C]
120	2	85
	5	75
	10	70
100	2	75
	5	65
	10	60



Dimensions



Recommended torque = 30-35 Nm (Depends of different parameters as packing material, mating material, thread lubrication and pressure level.)

Electrical connection

