GEFRAN
BEYOND TECHNOLOGY

VDA-M

TWO OR THREE-CHANNEL AMPLIFIER

SENSORMATE
A GEFRAN COMPANY

Main features:

- *Solution for:*
  - Clamping Force measurement
  - Mold Protection
  - Cavity Pressure Profile monitoring
- *Only one sensor mounted either on the tie-bar or on the toggle*
- *Usable on injection molding machines with toggle lever*

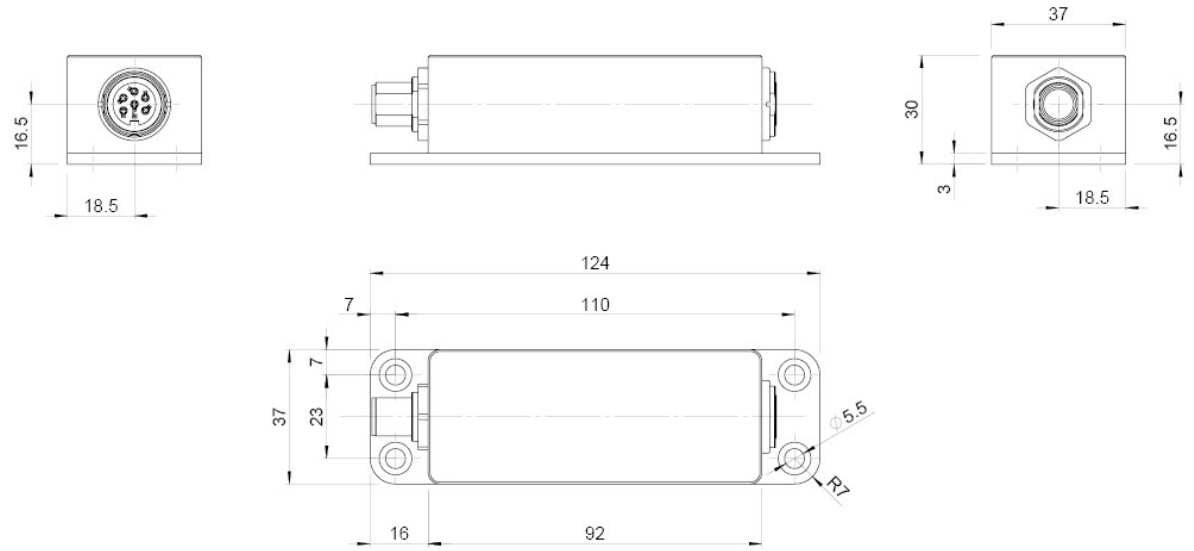
The amplifier VDA-M is a smart solution for clamping force measurement, mold protection and monitoring of the cavity pressure profile of injection molding machines with toggle lever.
The three-channel amplifier VDA-M measures all three parameters with only one sensor, which is mounted either on a tiebar or on the toggle, depending on the machine type. This is made possible by sophisticated digital amplifier electronics which, in addition to the output for the clamping force, also supplies high-resolution signals specially conditioned for the respective application for mold protection and evaluation of the cavity pressure profile.

TECHNICAL DATA

	Clamping force output (CF)	Mold protection output (MP)	Cavity pressure profile output (CPP)
Linearity	< ± 0.02% FS	< ± 0.02% FS	< ± 0.02% FS
Accuracy at room temperature (1)	< ± 0.2% FS	< ± 1% typ. (< ± 2% max.)	< ± 1% typ. (< ± 2% max.)
Signal input range (FS)	0.1…3.00 mV/V (100…3000με)	0.02…0.10 mV/V (20...100με)	0.02…0.10 mV/V (20...100με)
Output resolution	16-Bit	16-Bit	16-Bit
Sampling rate	1 kHz	1 kHz	1 kHz
Low-pass filter	100 Hz	100 Hz	100 Hz
Case material	Aluminum anodized		
Reset time	see order code		
Reset voltage	12…36 VDC		
Supply voltage	12…36 VDC		
Power consumption	0.6W		
Allowed load	≥5 kΩ	≥5 kΩ	≥5 kΩ
Operating temperature range	-40…+85°C		
Storage temperature range	-40…+100°C		
Temperature effects	± 0.01% FS/°C	± 0.02% FS/°C	± 0.02% FS/°C
Weight	~160 g		
Protection class	IP65		
Output short circuit protection	Yes		
Reverse polarity protection	Yes		
Dielectric strenght (2)	250V		
EC Conformity A	According to Directive 2014/30/EU		
(1) incl. Non-linearity, Hysteresis, Repeatability, Zero-offset and Span-offset			
(2) Uses 50V 2J Voltage suppressor			
The three output ranges are from 0 up to ±12 V. The amplifier has an integrated sensor cable breakage detection. In the event of an interruption in one or more sensor lines, the output voltage increases or decreases to a value ±11.5V ... ±12V. In order to properly use the cable breakage detection it is suggested to use the amplifier only in the range ±10.0V and to make sure that the amplifier is reset after every machine cycle.			

DIMENSION

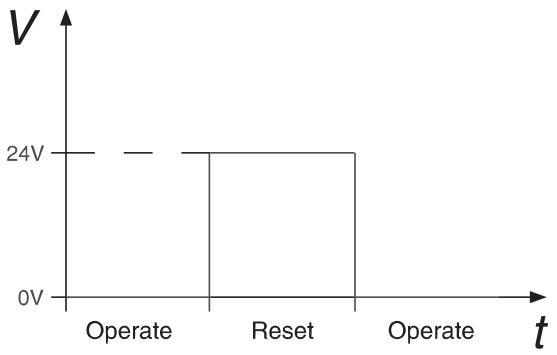
VDA-M



Dimensions in mm

RESET FUNCTION

24V - TYPE

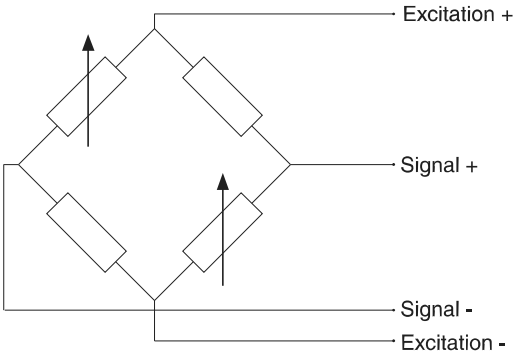


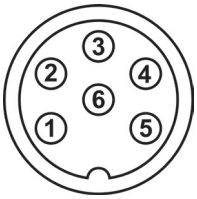
Reset control input	Reset	12...36V
	Operate	0V / open
Minimum reset pulse duration	HR11: >25ms	
	HR14: >5ms	

With the power-on reset function the amplifier generates a reset signal when power is applied to device.

ELECTRICAL CONNECTION SENSOR SIDE

Sensor 4/4 bridge M16 6-pin

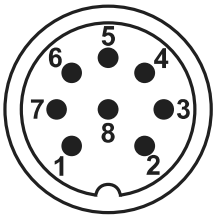




Connector PIN	Function
1	Excitation +
2	Excitation +
3	Excitation -
4	Signal +
5	Signal -
6	Excitation -

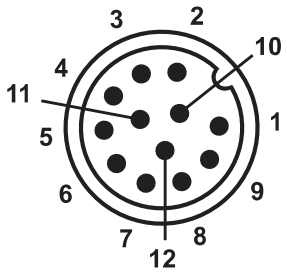
ELECTRICAL CONNECTION CONTROLLER SIDE

Controller M12 8-pin



Connector PIN	Function
1	Power 12...36VDC
2	CF Signal -
3	Power GND
4	CF Signal +
5	Reset CF signal
6	MP or CPP signal -
7	MP or CPP signal +
8	Reset MP or CPP Signal

Controller M12 12-pin



Connector PIN	Function
1	Power 12…36VDC
2	CF signal -
3	Power GND
4	CF signal +
5	Reset CF signal
6	MP signal -
7	MP signal +
8	Reset MP signal
9	CPP signal -
10	CPP signal +
11	Reset CPP signal
12	/

ORDER CODE

VDA-M - [H] - [ ] - [ ] - [4] - [ ][ ][ ][ ] - [ ][ ][ ][ ] - [ ][ ][ ][ ] - [ ][ ] - [ ][ ][ ] - [O]

Electrical connection controller side	
M12 8-pin (CF and MP) or (CF and CPP)	**L**
M12 12-pin (CF, MP and CPP)	**S**

Output signal	
0…±10 Vdc (for all the outputs)	**N**
0.5...+10V; -9 V (for all the outputs)	**D**

Clamping Force output (CF)		
0.10 mV/V	100 με	**0100**
0.50 mV/V	500 με	**0500**
1.00 mV/V	1000 με	**1000**

Mold Protection output (MP)		
No second output		**0000**
0.02 mV/V	20 με	**0020**
0.03 mV/V	30 με	**0030**
0.05 mV/V	50 με	**0050**
0.10 mV/V	100 με	**0100**

Cavity Pressure Profile output (CPP)		
No third output		**0000**
0.02 mV/V	20 με	**0020**
0.03 mV/V	30 με	**0030**
0.05 mV/V	50 με	**0050**
0.10 mV/V	100 με	**0100**

Special function		
High amplification	negative strain gives positive signal + cable break function	**H1**
	positive strain gives positive signal + cable break function	**H2**

Reset type	
External high-reset (24V), with power-on reset (infinite reset cycles allowed) with 25 ms reset time	**HR11**
External high-reset (24V), with power-on reset (infinite reset cycles allowed) with 5 ms reset time	**HR14**

ACCESSORIES

Description		Code
Female connector M12 8-pin		TE-E-0591_00
Cable with female connector M12 8-pin	2m	F085191
	5m	F085192
	10m	F085193
	15m	F085232
Female connector M12 12-pin		TE-E-0590_00
Cable with female connector M12 12-pin	2m	F085233
	5m	F085234
	10m	F085236
	15m	F085237

Sensormate AG
Steigweg 8, - CH-8355 Aadorf, Switzerland
ph: +41(0)52-2421818 - fax: +41(0)52-3661884
Internet: http://www.sensormate.ch

GEFRAN spa
via Sebina, 74 - 25050 PROVAGLIO D'ISEO (BS) - ITALY
ph. +39 030 9888.1 - fax. +39 030 9839063
Internet: http://www.gefran.com