BRIEF INFORMATION

Upright Pedal sensors

- Contactless measurement
- Slim yet sturdy design
- Simple mechanical connection
- Redundant output signal
- High measurement precision
- No training in the vehicle necessary
- High interference immunity against electrical and magnetic fields

PRODUCT FEATURES

Application
FORVIA HELLA accelerator pedals designed for upright mounting can be used in a wide variety of vehicles – ranging from automotive sector applications, such as sports cars and electric vehicles, to robust applications in agricultural and construction vehicles.

Thanks to the contactless system of measurement provided by FORVIA HELLA's own CIPOS sensor (see description of design and function) and its extremely low level of mechanical wear, it is advisable to choose such a sensor system over contact-type accelerator pedals, especially for small, frequently recurring movements.

Design and function
The housing and pedal plate are made entirely from glass fibre-reinforced plastic. The actuating force is generated by two springs, each individually ensuring safe return to the initial position. The electrical output signal is obtained contactless above the CIPOS measuring principle. For this purpose, a sheet metal cursor is routed from the pedal plate with a guide rod via sensor conductor paths on the measuring board. Two galvanically isolated sensors then each generate an output signal there.

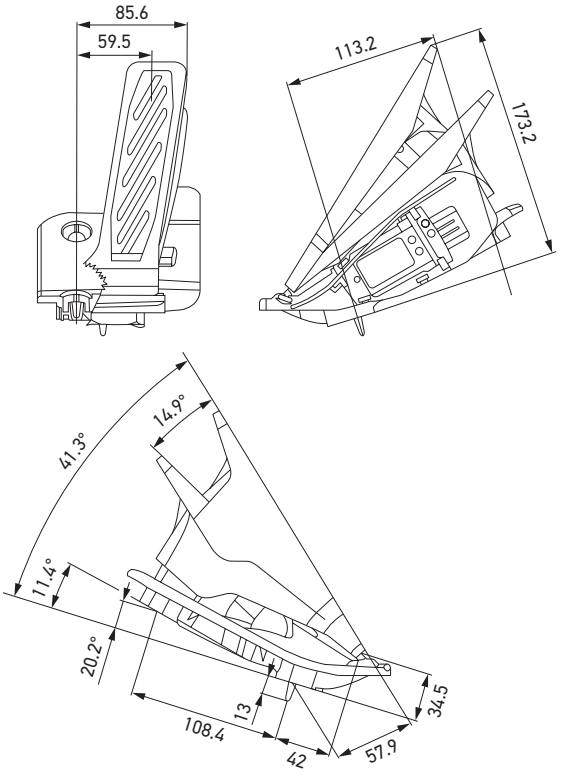
TECHNICAL DETAILS

Technical data	
Operating voltage range	5 V ± 6%
Idling voltage	16%/8%
Full throttle voltage	79%/39%
Signal output current	Max. 0.525 mA
Power consumption per channel	Max. 10 mA
Initial force	15.5 N
Final force	31 N
Actuation angle	15°
Load resistor	10 kΩ to 225 kΩ
Load capacity	Max. 15 nF
Temperature range	-40 °C to +85 °C
Storage temperature	-40 °C to +105 °C
Output signal	2x analogue ratiometric, 2nd channel half pitch
Protection class	IP 5K4 (with mounted counter connector)
Weight	≤ 500 g
Material	Housing: PP-GF30
Mating connector[1)]	F(6189-1083)
Linearity	≤ 1%
Synchronisation	≤ 1,2%
Filter constant in the control unit	1 ms ± 5%
Actuations	Min. 2 million
Compliant	ISO 26262 ASIL A (B)
Protection	Overvoltage protection duration t = 60 min (16 V)
ESD	2 kV, 12 kV [2)]

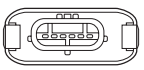
[1)] This accessory is not included in the scope of delivery. Available from Sumitomo. Gold-plated contacts and single conductor insulation are required.

[2)] With ESD-protected connector and wiring

Dimensional sketch



Pin assignment/electrical connection



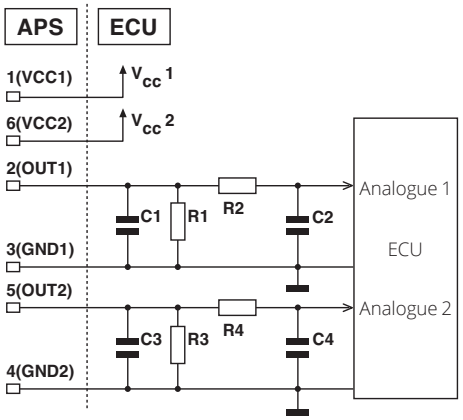
Pin 1 – Vcc + 5 V DC: Sensor 1
Pin 2 – signal: sensor 1
Pin 3 – GND: sensor 1
Pin 4 – GND: sensor 2
Pin 5 – signal: sensor 2
Pin 6 – Vcc + 5 V DC: Sensor 2

PROGRAM OVERVIEW

Product picture	Description	Material	Part number	VPE*
	Accelerator pedal, floor-mounted	Plastic	**6PV 312 093-017**	1

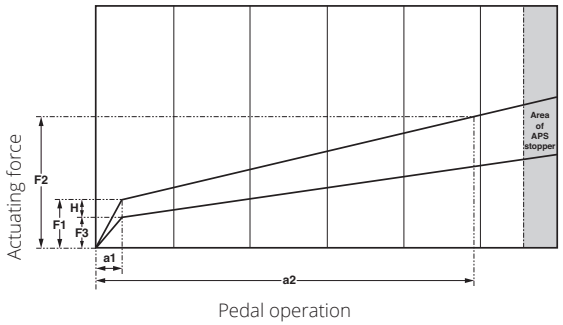
* Packaging unit

RECOMMENDED WIRING IN THE CONTROL UNIT

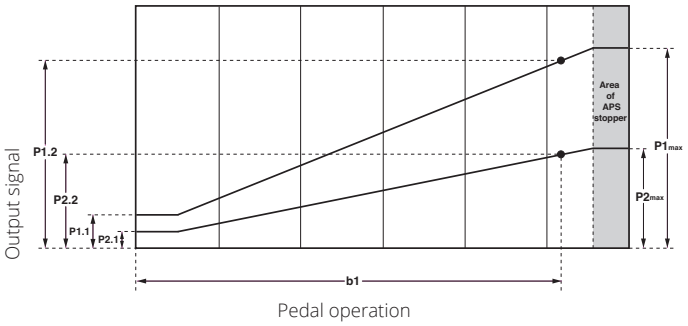


Component values:
R1, R3 typically 10 kΩ
C1, C3 typically 1.0 nF ± 10 %
R2*C2; R4*C4 typically 1 ms

Mechanical characteristic curve



Electrical characteristic curve



			Rated values
F1	Initial force	Newton (N)	15,5 ± 3,5
F2	Final force	Newton (N)	31 ± 4
F3	Restoring force	Newton (N)	> 5
H	Force hysteresis	Newton (N)	> 6
a1	Starting angle	Degree (°)	< 0,7
a2	End angle	Degree (°)	14,9 ± 0,9

			Rated values
P1.1	Idle voltage S1	Percent (%)	16 ± 0,6
P2.1	Idle voltage S2	Percent (%)	8 ± 0,6
P1.2	Full throttle voltage S1	Percent (%)	78,8 ± 1
P2.2	Full throttle voltage S2	Percent (%)	39,4 ± 1
$P1_{max}$	Maximum voltage S1	Percent (%)	91 ± 1
$P2_{max}$	Maximum voltage S2	Percent (%)	45,5 ± 1
b1	Full throttle angle	Degree (°)	14