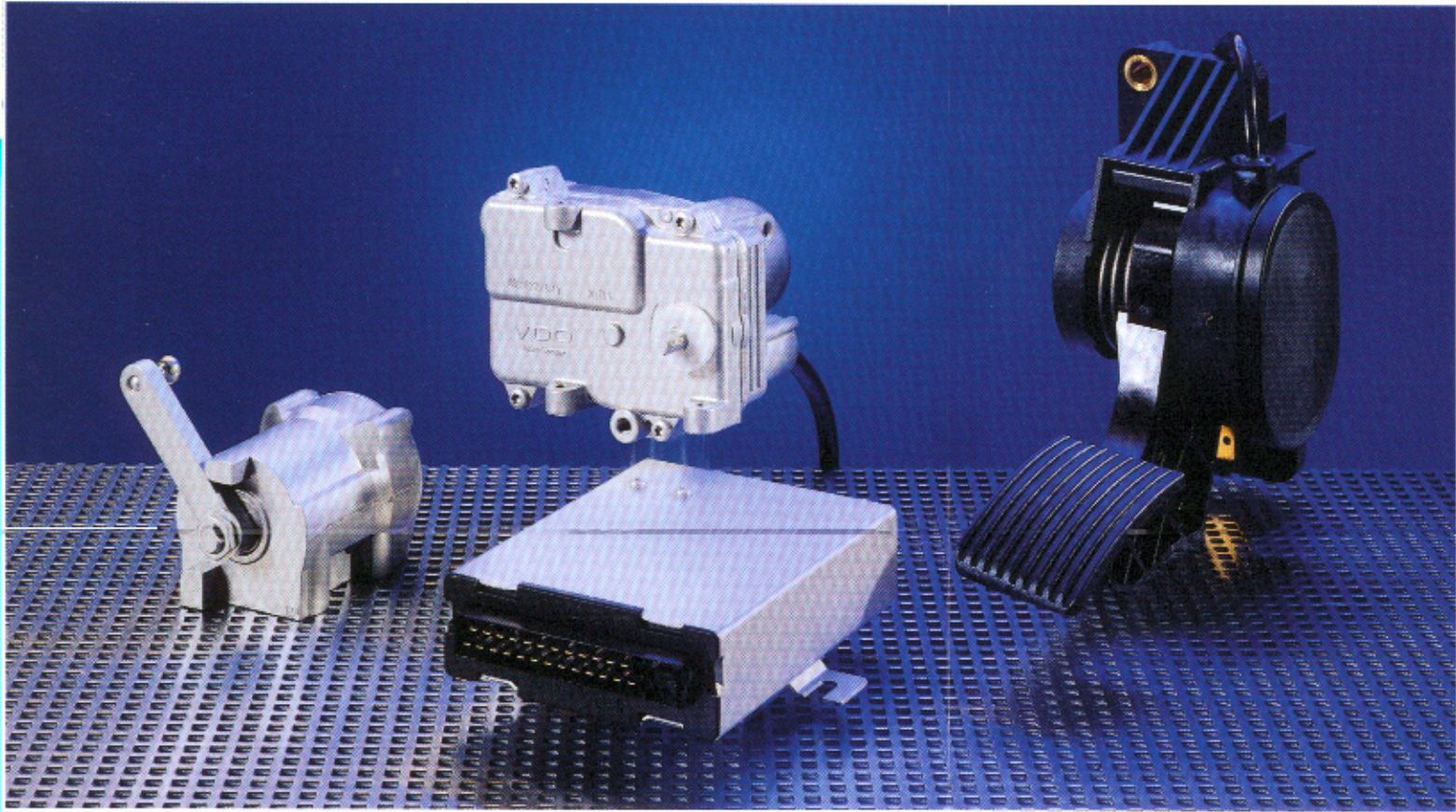




## Leeway in Handling Acceleration and Speed Control

VDO E-Gas® compact Electronic Communication  
of Accelerator (or Gas) Pedal positions

# Electronic Acceleration Was Never as Favourably Priced as This

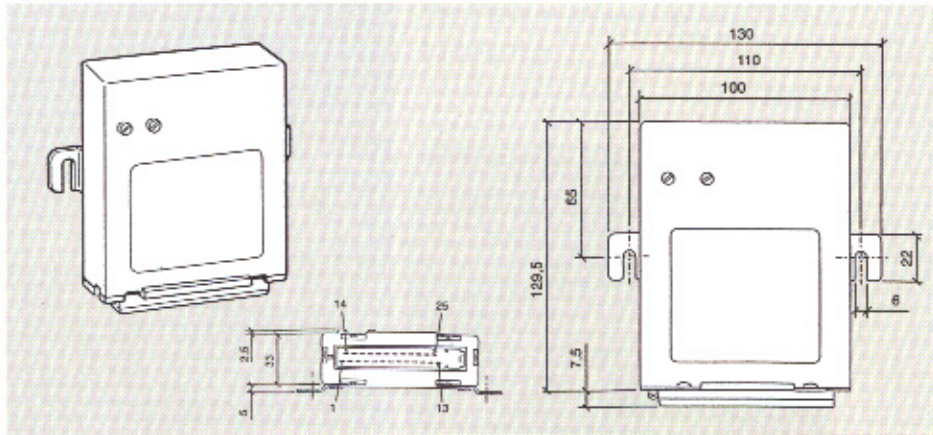


Function	After running control	External set-point selection	Engine-speed limiter	Position limiting	Road-speed limiter	VDO tempostat <sup>®</sup> function	Working-speed mgt.	Fixed-speed mgt.	Idling-speed booster
<b>Requirements</b>									
Bridging long or short distances in com. acc. pedal positions	■								
Use in management systems of other mfrs.	■	■							
Engine protection			■	■					
Use of additional aggregates							■	■	
Road-speed limiting					■				
Several driver/operator settings	■	■							
Safety requirements in certain operating conditions			■	■	■				
Idling-speed booster								■	■
Smooth driving style			■		■	■			
Synchronisation of several engines/ drive aggregates	■	■	■				■	■	
Engine-speed management							■	■	

# Technical Data

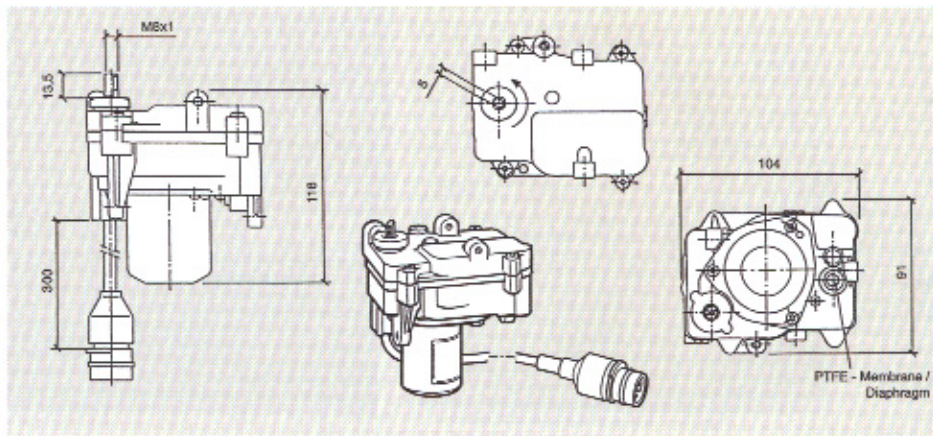
## Electronic Regulator (Electronics)

Nominal voltage	12/24 V
Test voltage	14/28 V
Operating voltage	9,5 V to 30V
Operating temperature range	-40°C to +70°C
Storage temperature	-40°C to +80°C
Standards	Protection IP 53/ DIN 40050, in EEPROM
Fault memory	
Fault output	Via flasher or diagnostics interface
Installation site	Driver's cab



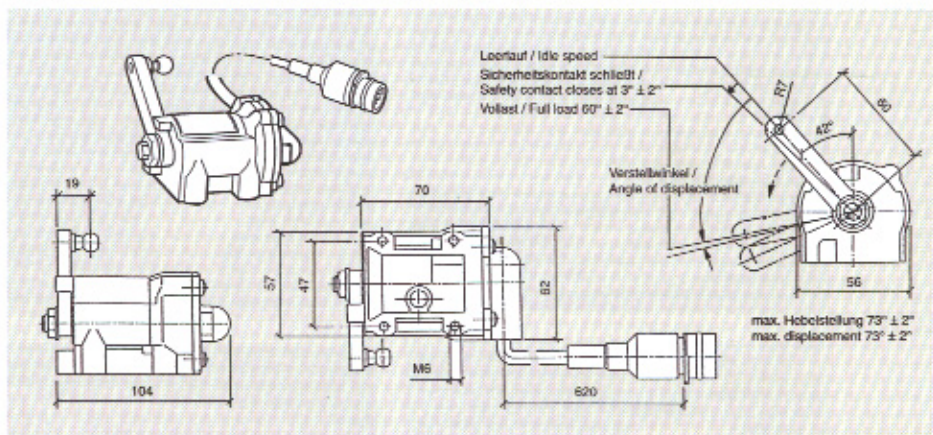
## Electric Actuator:

Nominal voltage	24 V
Operating temperature range	-25°C to +90°C
Storage temperature	-35°C to +115°C
Rated torque	250 Ncm
Response time	≤ 1sec
(typical)	750 ms
Positioning angle	87° ± 3°
Standards	Protection IP 56A / DIN 40050
Nominal voltage	12 V
Response time	< 2 sec



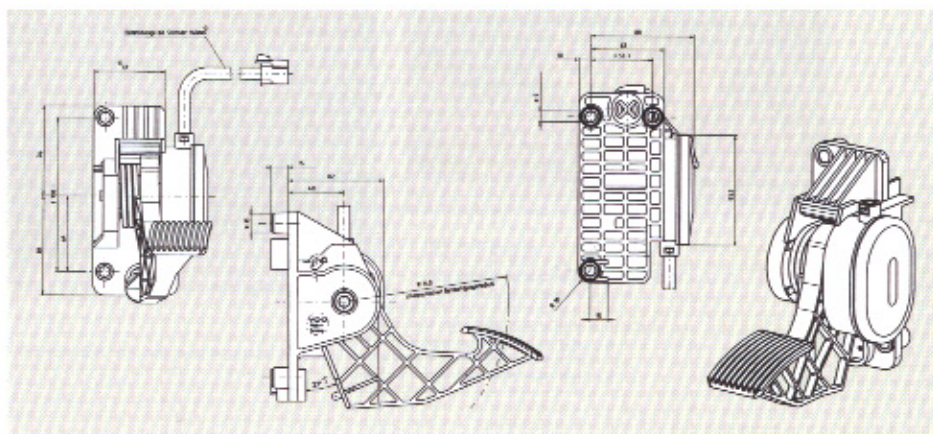
## Set-Point Sensor

Operating voltage	Supplied through regulator
Operating temperature range	-30°C to +80°C
Storage temperature	-30°C to +90°C
Initial torque	160 Ncm + 20 Ncm/ -30 Ncm
Final torque	280 Ncm ± 40 Ncm
Kickdown torque	550 Ncm ± 40 Ncm
Standards	Protection IP 66/ DIN 40050



## Pedal Unit

Service voltage	Supplied through regulator
Operating temperature range	-40°C to +80°C
Storage temperature	-40°C to +100°C
Standards	Protection IP 54/ DIN 40050
Signal	PWM



## A Wide Range of Possible Vehicle Target Groups



VDO E-Gas® compact is an extremely flexible system for universal use in many different operating conditions. This selection of possible fields of application can only give a general impression of this flexibility:

- Ground-level industrial trucks
- Agricultural machines
- Wheel loaders
- Forestry machines
- Loading tractors and earth movers
- Various municipal-authority vehicles
- Road-construction machines
- Excavators
- Stationary machines
- Airport vehicles
- Container lifts / dockside vehicles



The large system capacity for engine and vehicle management allows easy adaptation to the vehicle concept under discussion.

In the area of project implementation, you will be supported by experienced system professionals. Programming and fine tuning are carried out individually in accordance with your specifications.



# Control and Convenience Functions

## A Few Words on the Product History

VDO Adolf Schindling AG originally developed electronic accelerator systems for use in articulated buses. Here the centrally located pivot caused problems with the communication of accelerator pedal positions to the rear-mounted engine. The introduction of VDO E-Gas® in 1978 for the first time allowed long and variable distances between the accelerator pedal and the engine compartment to be bridged electrically. The system replaces elaborate, high-maintenance rod assemblies or Bowden cable systems with a line transmitting just pulses. In subsequent years the groups of users steadily grew in numbers. Today, almost all manufacturers of buses and trucks use the electronic method of communicating accelerator pedal positions. For a long time though, it has not been merely the communication of accelerator pedal positions that determines the use of the product. VDO E-Gas® is now also standard on larger special vehicles and machines. Behind this trend is the increasing complexity of the vehicles.

## The Development Continues

In most cases, medium-sized to small special vehicles are still equipped with mechanically regulated pumps and accelerator systems. Here, too, there is nevertheless a need for electronic systems to increase vehicle safety and comfort and to solve technical problems without using high-maintenance mechanisms. The introduction of the new VDO E-Gas® compact electronic accelerator system allows us to meet the demand for a favourably priced solution for these vehicle target groups. VDO's expertise, growing out of a long tradition, and the experience gained with VDO E-Gas® I/II form the basis for this new development. The comprehensive range of special functions of VDO E-Gas® II has been reduced wherever these functions are not absolutely necessary for normal service. This has allowed us to achieve an interesting price for a kit for smaller vehicles. This more favourable price, however, does not mean any reduction in the high standard of VDO quality or technical support by VDO system specialists.

## A Quick Look Behind the Scenes

VDO E-Gas® compact consists of an electronic regulator, an electric actuator with a disconnecter, and a set-point or pedal-position sensor. Special interfaces permit the processing of external set-point selections and networking with other controllers. This makes it possible to preselect a certain position on the engine performance lever of the injection pump. In addition, VDO E-Gas® compact offers the option of influencing the respective actuating lever position by means of switches and sensors.

## After-Running Control

The electronics of VDO E-Gas® compact are capable of processing different set-point selections. Depending on the type of set-point selection, the set-point sensor, the pedal-position sensor as well as two additional connections are available for pulse recording.

## Engine-Speed Functions

VDO E-Gas® compact offers four options for controlling engine speed:

- The working-speed regulator is activated by means of an operating lever. This function can be used to set a constant engine speed while the vehicle is at a standstill. This is useful, for example, when additional aggregates are connected via a secondary output.
- The fixed-speed regulator is activated by means of a switch. The preselected engine speed is kept constant by the system.
- Permanently programmed engine-speed limiter
- A second (previously permanently programmed) engine-speed limiter is activated by means of a switch as required.

## Road-Speed Functions

The electronic accelerator pedal has three functions influencing the road speed:

- With the integrated electronic road-speed regulator (VDO tempostat® cruise control), the current road speed is kept constant without manual acceleration. The desired speed is stored and activated by means of an operating lever.
- Road-speed limiter (in accordance with EU directives 92/6, 92/24, prescribing absolute road-speed limiting)
- A second, variably programmable road-speed limiter can be activated by means of a switch.

## Actuator Limiter

At the request of the customer, a maximum actuator position can be permanently programmed in the electronic regulator. When this actuator position is reached, a simple switching signal causes the engine performance to be limited.

## Idling-Speed Booster

The increase in the idling speed can be controlled by means of an operating lever. This can be used, for example, to achieve greater compressor performance to fill up connected compressed-air vessels even faster.

## Diagnostics Options

VDO E-Gas® compact is fitted with an integrated fault memory for analyzing possible faults in function. The fault is displayed either by means of a fault lamp fitted in the vehicle (flasher) or in clear text using a PC.

Any commercial PC can be connected to the diagnostics interface with the help of an interface unit. The system is also programmed for the vehicle in question via the diagnostics interface. There is special PC software for checking and programming VDO E-Gas® compact.

### Actuator

Drives throttle/injection pump.  
Receives signal from ECU.

Consequences of tampering:

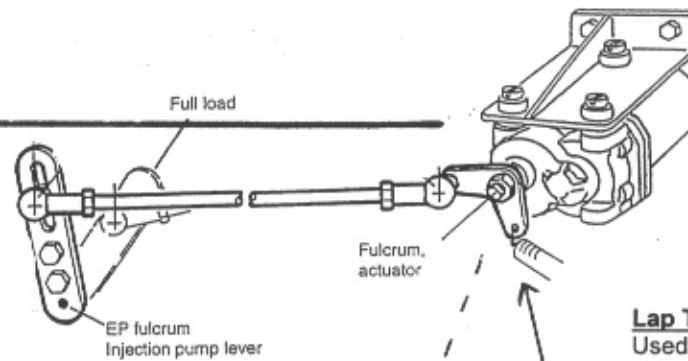
Disconnect – will return to idle via return spring.

Disconnect actuator and return spring – no control.

Lengthen Connecting Rod – Increases idle, does

Not affect top speed.

**(NOTE: The worst case outcome of tampering is exactly the same as disconnecting a conventional accelerator cable and return spring.)**



### Lap Top Computer

Used to set operating parameters of ECU.  
Must be loaded with VDO proprietary protected software; must have dedicated connecting loom with special plug for ECU.

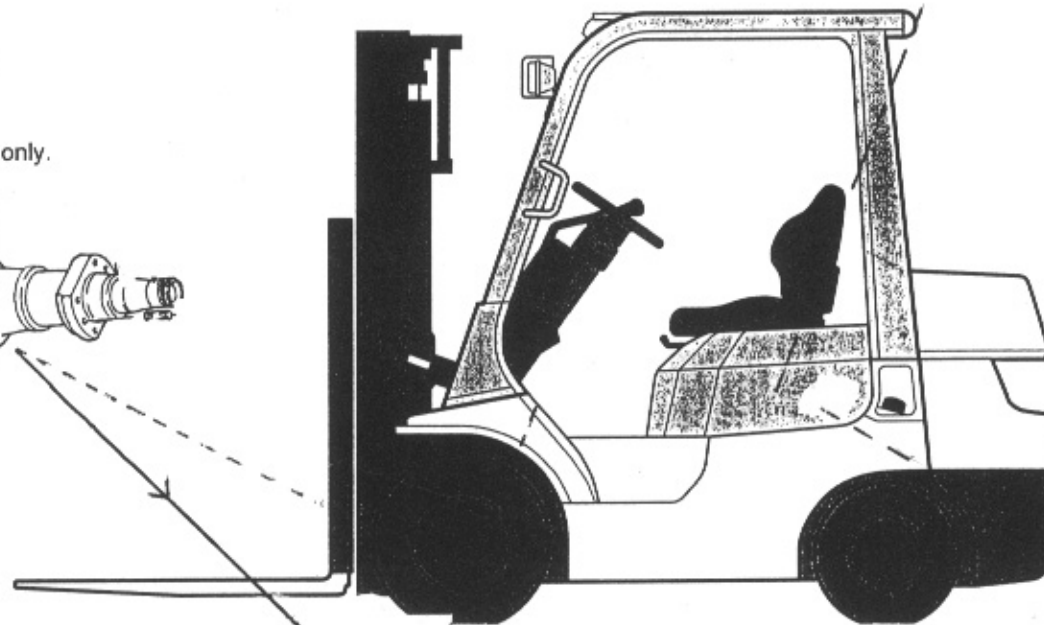
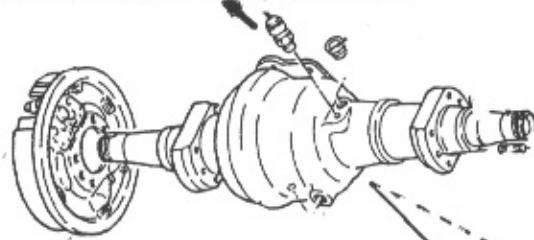


### Speed Pick Up

Inductive (magnetic) sensor counting passing teeth (pulses) on crown wheel. Sends pulses to ECU for determining road speed.

Consequences of tampering:

Disconnect or removal – Engine idle only.



### Set Point Sender

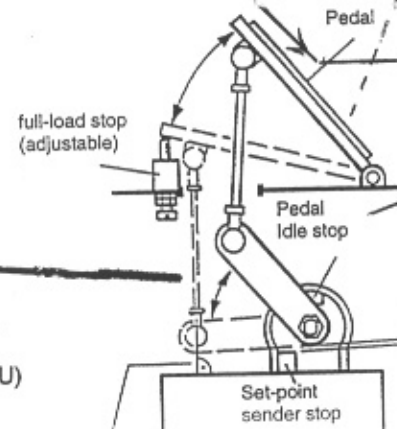
Placed under existing pedal  
Sends signal to ECU as throttle.

Consequences of tampering:

Disconnect – Engine idle only

Decrease full-load stop - Engine may over rev while forklift stationary.

(this can be protected against by installer setting max % throttle in ECU)



### ECU (Electronic Control Unit)

Is the "Brain" of the system.

Is programmed via Lap Top Computer.

Receives signals from Set Point Sender and Speed Pick Up. Sends drive signal to actuator.

Consequences of tampering:

Disconnect – removes power from whole system; Actuator returns to idle.

