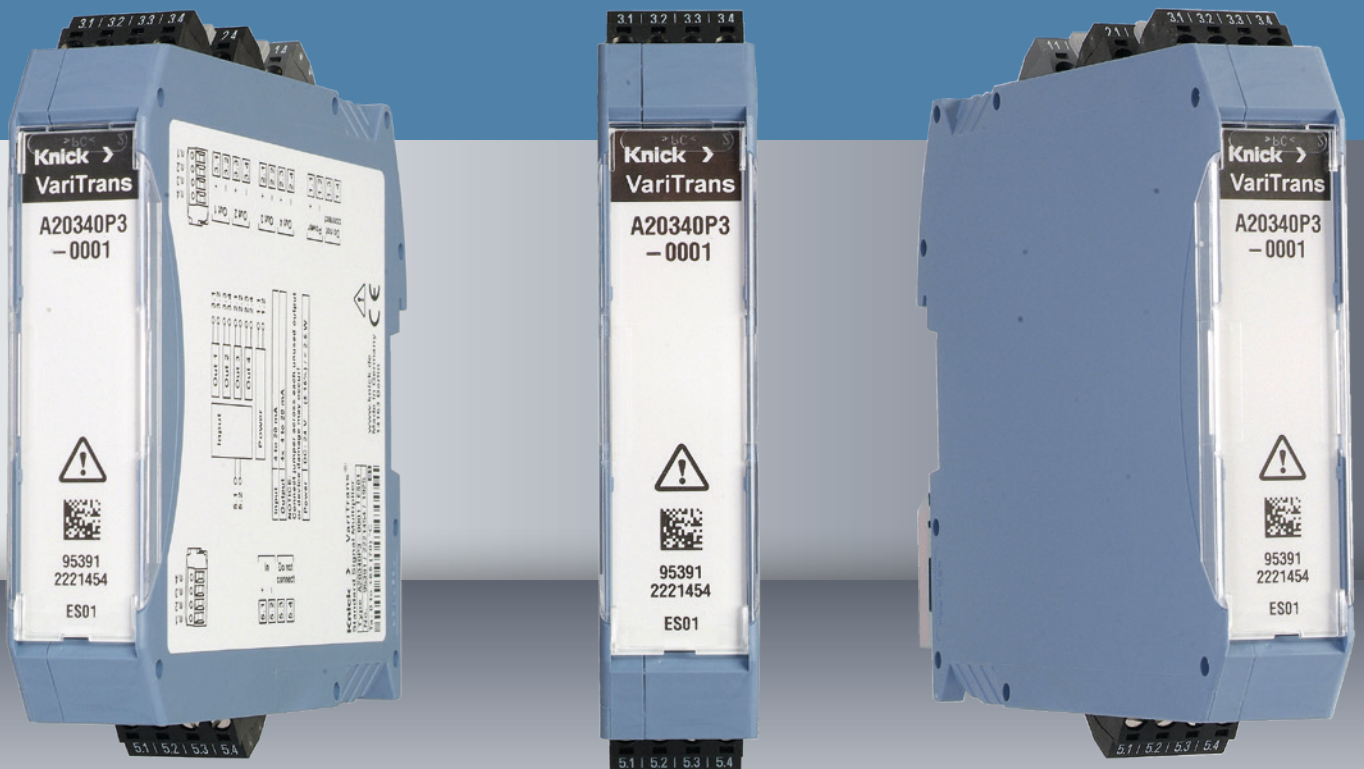


Standard-Signal Multiplier

VariTrans A20340

Signal Quadrupling/Load Increase





VariTrans A 20340

Signal multiplier with four calibrated outputs,
also for applications with high output loads.

The Task

Isolation and transmission of 0(4) ... 20 mA standard signals in four 0(4) ... 20 mA output channels with galvanic isolation between input, outputs, and power supply.

The Problems

Measuring and control engineering frequently requires an analog standard signal to be processed at several points, i.e., by multiple devices, all of which need to receive the same signal. To prevent falsified signals and in particular, in the event of errors, interaction or even damage, it makes sense to isolate signals and devices galvanically from one another.

The Solution

The VariTrans A 20340 signal multiplier is an extremely compact product that also provides a cost-effective solution to the problem. In this module, the input, all 4 outputs, and the power supply are safely decoupled from one another (six-port isolation).

The Advantages

As a Signal Multiplier:

In addition to “quadrupling” the analog signal, the VariTrans A 20340 is capable of calibrated signal transmission with signal isolation.

To Increase the Load:

The VariTrans A 20340 can also be used when a particularly high output load is required. Standard signal sources can often drive a load of up to 500 ohms, i.e., supply 10 V at 20 mA. Sometimes, certain devices, such as actuators, require a higher voltage; i.e., their input resistance is higher. The signal multiplier can also solve this problem: The four output signals are not used separately in this case, but are connected in series to form two signals. This doubles the available voltage, making it possible to drive a higher load of up to 1000 Ω (20 V at 20 mA). Of course, the signal-defining 0/4 to 20 mA current is retained in the series configuration.

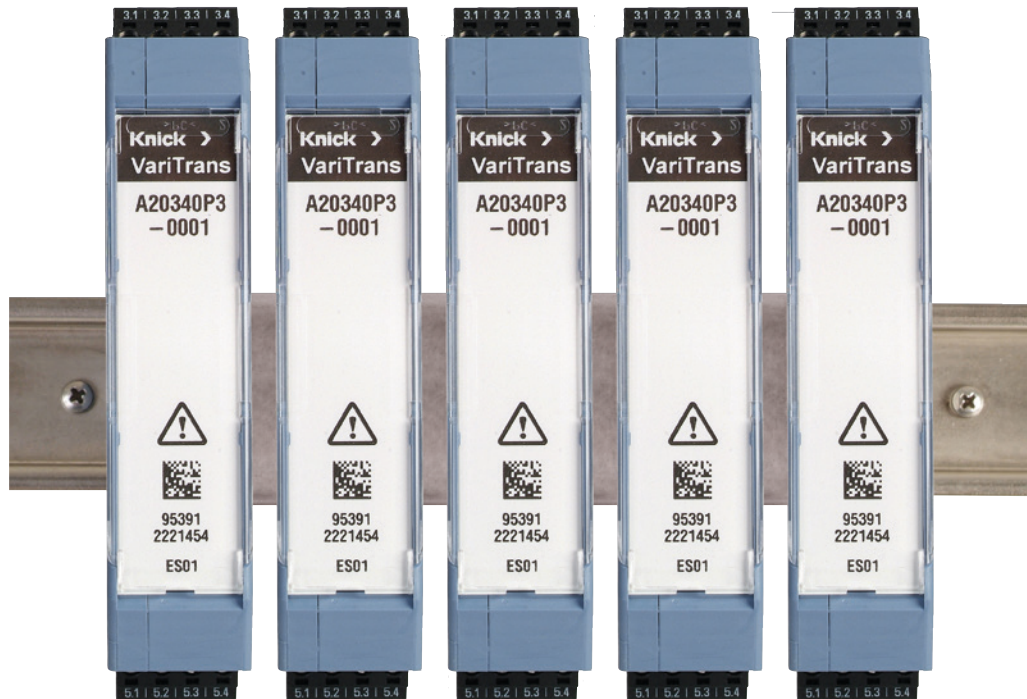
The Technology

To implement the high level functionality of an A 20340 in the smallest of spaces – in a 22.5-mm wide modular housing with correspondingly small volume – a patented circuit design is used. The energy balance (four active outputs), in particular, must be optimized for all operating conditions. As all products in the VariTrans A 20XXX series, the signal multiplier also provides protective separation in accordance with EN 61140 to ensure high-level protection of persons and installations. This is achieved by means of increased insulation in compliance with EN 61010-1. Despite being just 22.5 mm wide, the VariTrans A 20340 thus makes no compromises regarding its insulation properties.

VariTrans A 20340

Facts and Features

- **Safety in the smallest space**
6-port isolation in 22.5 mm modular housing
- **Signal multiplication**
combined with signal conversion
- **Load increase**
up to 1000 ohms possible for inputs with high input impedances
- **Standards-compliant personal protection**
through protective separation according to EN 61140
- **Precise signal reproduction**
thanks to a short response time of $T_{90} = 1 \text{ ms}$, even dynamic signal changes are accurately reproduced
- **Low-cost solution**
only one compact, low-cost device is required instead of four conventional signal conditioners



Product Line

Device	Input	Output	Order No.
VariTrans A 20340	0/4 ... 20 mA	4 x 4 ... 20 mA	A 20340 P3-0001

Power Supply

24 V DC

Accessories

	Order No.
Spacer	ZU 0945



Specifications

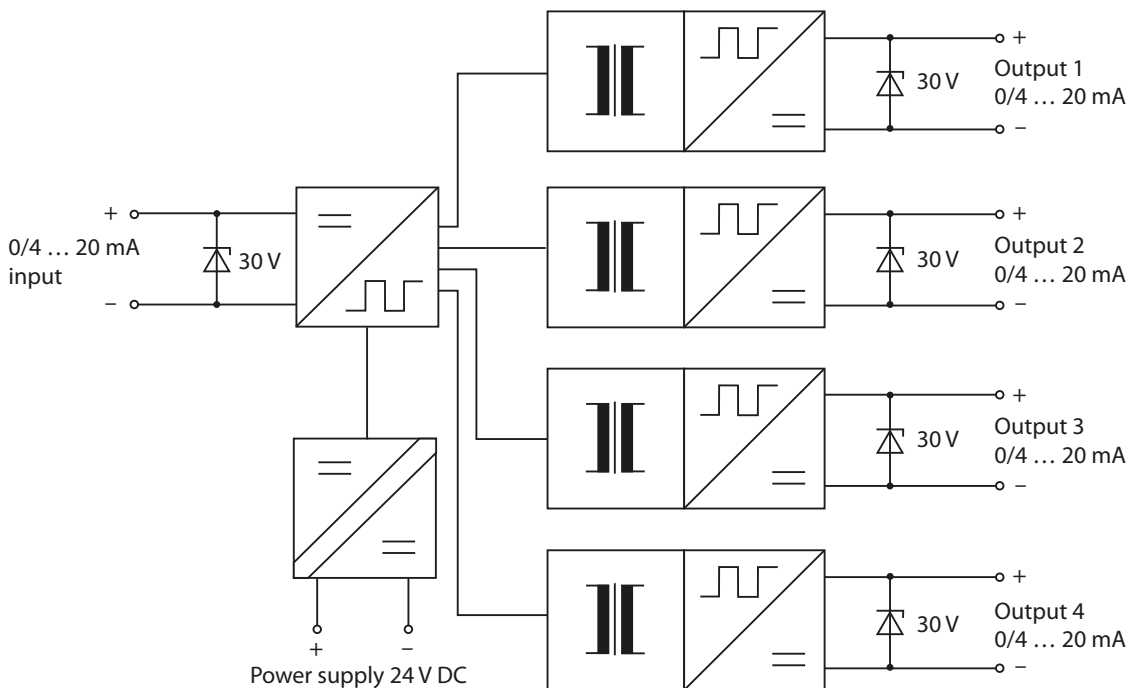
Input data	1 input	4 ... 20 mA		
	Input resistance	Voltage drop ≤ 0.2 V at 20 mA (with power failure approx. 700 mV)		
	Overload capacity	Self-resetting overcurrent protection (PTC characteristic), max. input voltage 30 V. Input cable limited to approx. 0.5 W when overcurrent protection is enabled.		
Output data	4 outputs	4 ... 20 mA		
	1:1 transmission of input signal on 4 outputs.			
	Load	Individual assignment of the 4 outputs	4 x $\leq 500 \Omega$	
		2 x 2 outputs connected in series	2 x $\leq 1000 \Omega$	
		With extended temperature range	4 x $\leq 100 \Omega$	
	Offset	< 30 μ A		
Ripple	< 10 mV _{rms} (at 500 Ω load)			
	< 20 mV _{rms} (at 1000 Ω load; two outputs in series)			
Transmission behavior	Gain error	< 0.2 % meas.val., also for outputs connected in series		
	Temperature influence	< 100 ppm/K full scale (reference temperature 23 °C) (Average TC in specified operating temperature range)		
	Cutoff frequency	approx. 100 Hz		
	Response time	T_{90} : approx. 1 ms	T_{99} : approx. 1.5 ms	
		24 V DC (± 15 %), approx. 2.5 W		
Isolation	Test voltage	1.5 kV AC, 50 Hz: among all circuits (1 input, 4 outputs, power supply.)		
	Working voltage (basic insulation)	Up to 300 V AC/DC across all circuits for overvoltage category II and pollution degree 2 (1 input, 4 outputs, power supply).		
		For applications with high working voltages, comply with adequate distance or insulation between adjacent devices and shock-hazard-protection.		
Protection against electric shock	Protective separation according to EN 61140 by reinforced insulation according to EN 61010-1.			
	Working voltage up to 300 V AC/DC for overvoltage category II and pollution degree 2 of outputs against each other and the outputs against the opposite input and against the power supply.			
	For applications with high working voltages, comply with adequate distance or insulation between adjacent devices and shock-hazard-protection.			
Standards and approvals	EMC	Product standard EN 61326		
		Emitted interference:	Class B	
		Immunity to interference:	Class A industrial area	

VariTrans A 20340

Specifications (Continued)

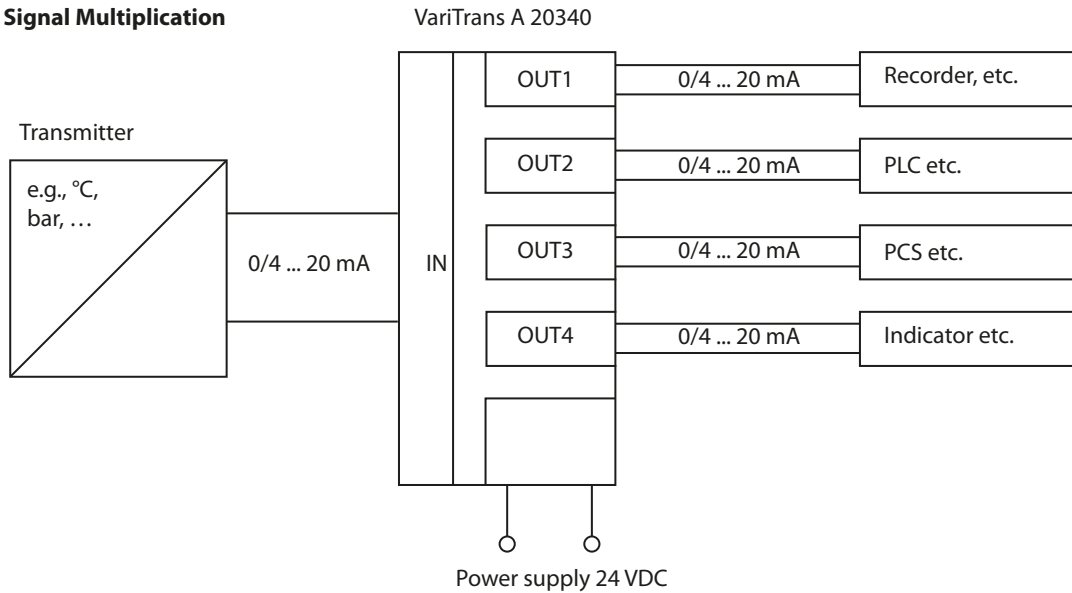
Further Data	Ambient temperature Operation	0 ... 65 °C
	Extended temperature range for loads $\leq 100 \Omega$ per channel:	0 ... 70 °C
	Storage	-25 ... 85 °C
Ambient conditions	Indoor use; relative humidity 5 ... 95 %, no condensation; Max. altitude 2000 m (air pressure: 790 ... 1060 hPa)	
Protection	IP 20	
Tightening torque	0.6 Nm	
Mounting	For 35 mm DIN rail acc. to EN 50022	
	NOTICE: Device must be installed together with spacers in order to ensure a minimum clearance of 4 mm from adjacent device. Failure to do so can result in product failure.	
Weight	200 g	

Block Diagram

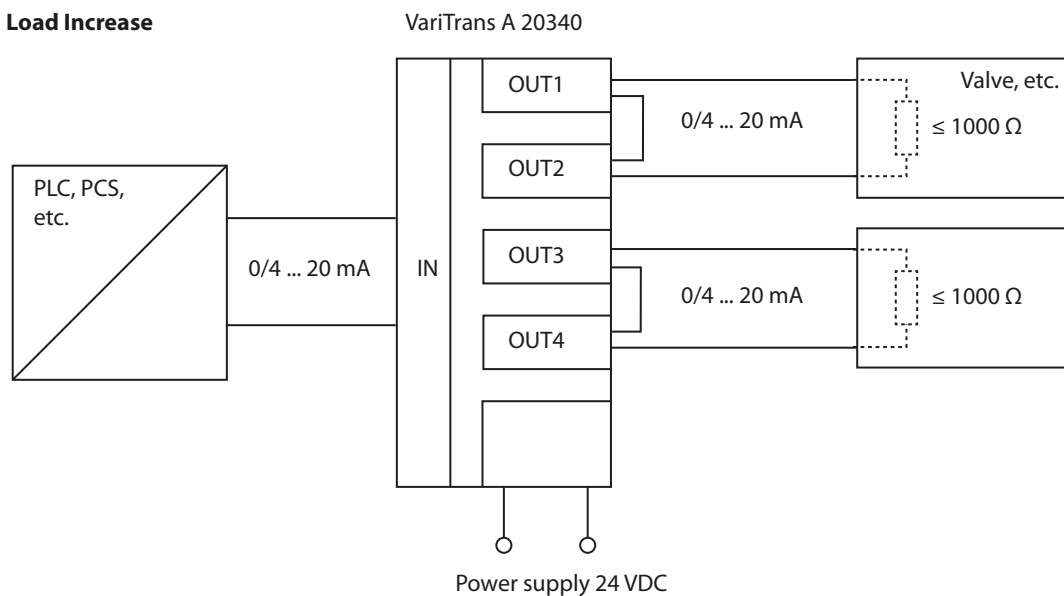


Typical Applications

Signal Multiplication

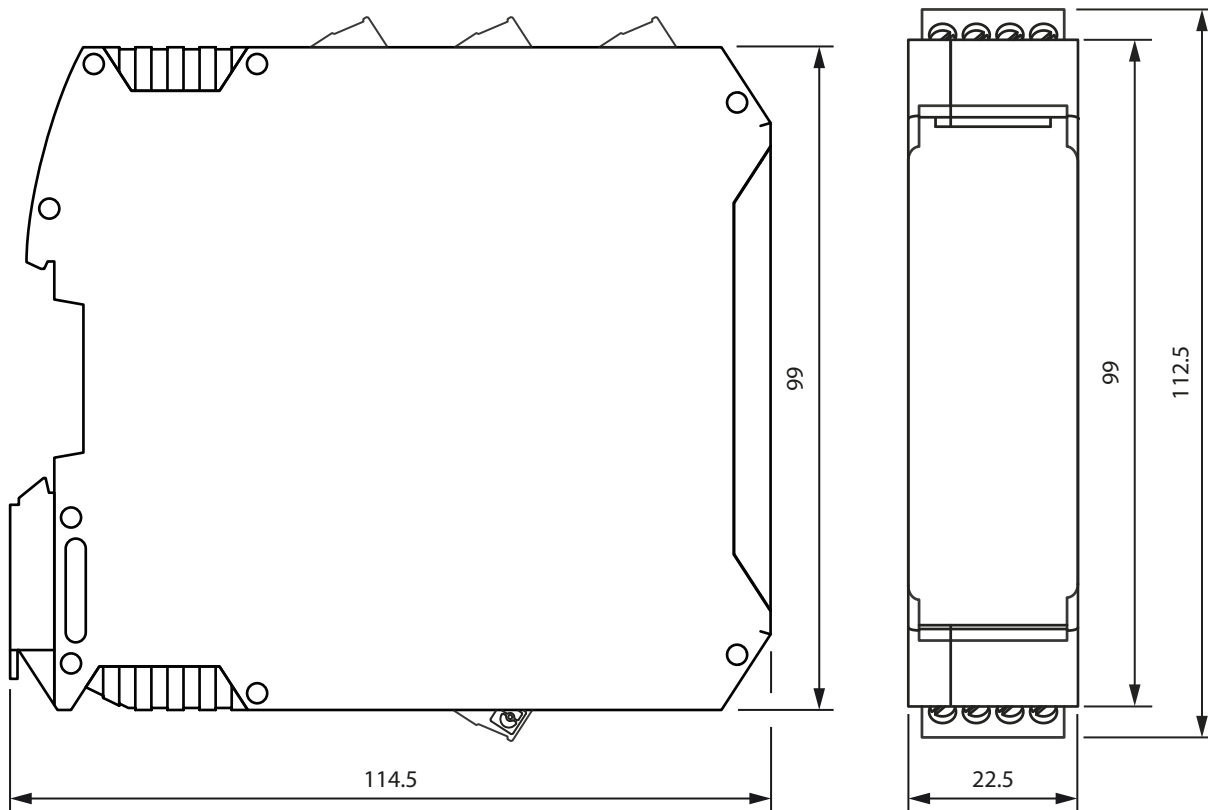


Load Increase



VariTrans A 20340

Dimension Drawing

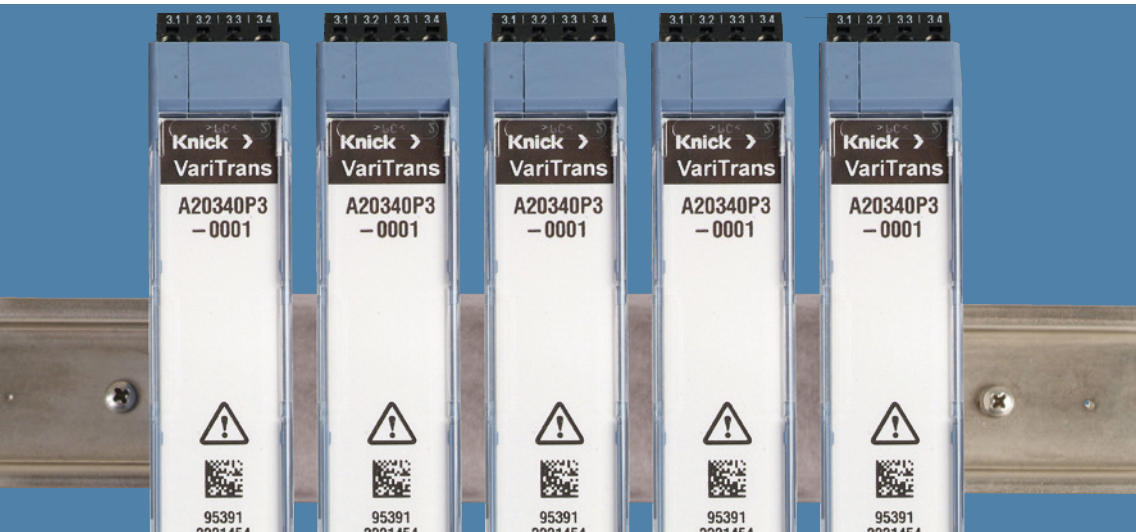


Terminal Assignments

1.1 Power supply +	1.2 Power supply -	1.3 Do not connect	1.4 Do not connect
2.1 Output 3 +	2.2 Output 3 -	2.3 Output 4 +	2.4 Output 4 -
3.1 Output 1 +	3.2 Output 1 -	3.3 Output 2 +	3.4 Output 2 -
5.1 Input +	5.2 Input -	5.3 Do not connect	5.4 Do not connect

Conductor cross-sections:

solid	0.2 ... 2.5 mm ²
stranded	0.2 ... 2.5 mm ²
24-14 AWG	



Interface Technology

- High Voltage Transducers
- Universal Isolated Signal Conditioners
- Sensors/Transmitters
- Signal Doublers
- Power Supplies
- Digital Indicators

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