



HVT 400-DX

**Failsafe
High Voltage Monitor
for up to 1.500 V**



Application

Electrification of numerous industries is prevalent. This is especially true for the automotive industry. Voltage levels of next generation powertrains or batteries in electric cars and trucks are increasing. Currently, 800-1200 V is made standard to achieve higher efficiency and faster charging time. This poses challenges to the safety of workers and equipment during manufacturing and testing of high voltage powertrain components using a failsafe voltage threshold (for example 50 VDC). Due to the flexible software configuration, the HVT 400 series is suitable for numerous industries and various electrification components.

Scope of use

- Battery
- Battery Management System
- Motor
- Inverter
- Climate Aggregate
- Charger
- Compressor
- HV-Supply

HVT 300-DV
Shunt
current
Measurement

HVT 300-DP
Balance
Voltage
Measurement

HVT 300-DX
Failsafe
High Voltage
Monitor

HVT 400-DX
Failsafe
High Voltage
Monitor

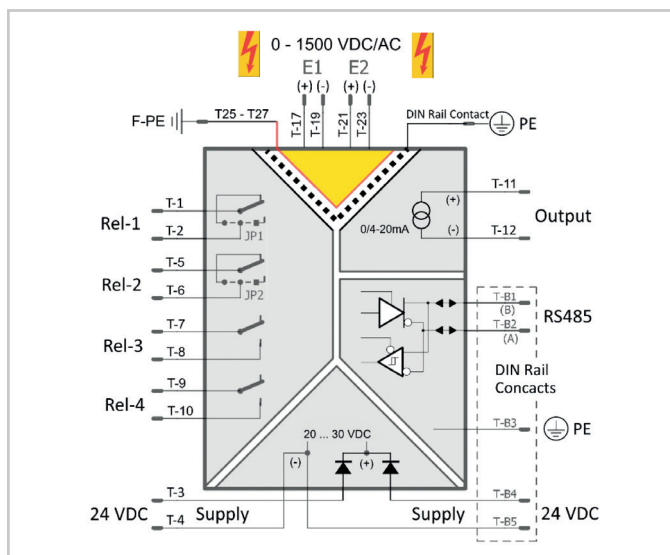
Safety Features

Featuring a safety-by-design approach, the HVT 400-DX provides a wide range of diagnostic functions. In order to create a safety loop, the desired output must be evaluated in conjunction with one of the two diagnostic relays REL3/REL4. This way, two individually configurable safety outputs can be created, for which either the relays REL1/REL2 or the 4...20 mA analog output are available.

Safety Properties	FMEDA
Category	SIL 2
Device type	Type B
HFT	0
SFF	95 %
DC	90 %
Safe failure rate	331 FIT
Safe detected failure rate	0 FIT
Safe undetected failure rate	331 FIT
Dangerous failure rate	362 FIT
Dangerous detected failure rate	325 FIT
Dangerous undetected failure rate	37 FIT

Main Benefits

- Failsafe voltage monitoring
- Simple software configuration via USB or Modbus
- 0-1500 V DC measurement range (DC and true RMS AC versions are available)
- Redundant architecture
- Robust design with high dielectric strength
- SIL2 according to IEC/EN 61508
- Two individual safety outputs
- LED status: Power, Error, Alarm
- 10-year proof test interval



Technical Data

Certificate	SIL 2 according to IEC 61508
Measurement range	0.. 1500 V AC/DC
Input Resistance	12 M Ω each channel
Analog Output	04... 20 mA
Load	Max. 500 Ω at 22 mA
Accuracy	< 0,5 %
Contact outputs	Normally Open
Switching Power	Max. 37,5 VA / Max. 30 W
Switching Voltage	Max. 125 VAC / 30 V DC
Switching Current	Max. 0,3 A AC / 1 A DC
Contact Material	AG Pd + 10 μ Au
Status LEDs	Power: Green Error / SIL Alarm: Red REL1/REL2: Yellow
USB Interface	USB 2.0
RS485 Interface	Half duplex, no scheduling
Baud rate	9600 bps
Device Address	1-248
Supply	24 VDC (20...30 VDC)
Power Consumption	Max. 1,9 W
Temperature	-10° C...+60° C
Storage / Transport	-20° C...+70° C
Perm. Humidity	10 %...95 % r.H no cond.
Max. operating Altitude	<2000 m above mean sea level
Temperature Coefficient	<0,01 %/K (max) <0,005 %/K (typical)
Galvanic isolation	4,3 kV AC test voltage
Overvoltage category	CAT II: 1500 V Pollution Degree 2
PCB Material	FR4
Housing Material	Polyamide
Protection Class	IP20
Flammability UL94	V0
Mounting type	35 mm DIN rail

