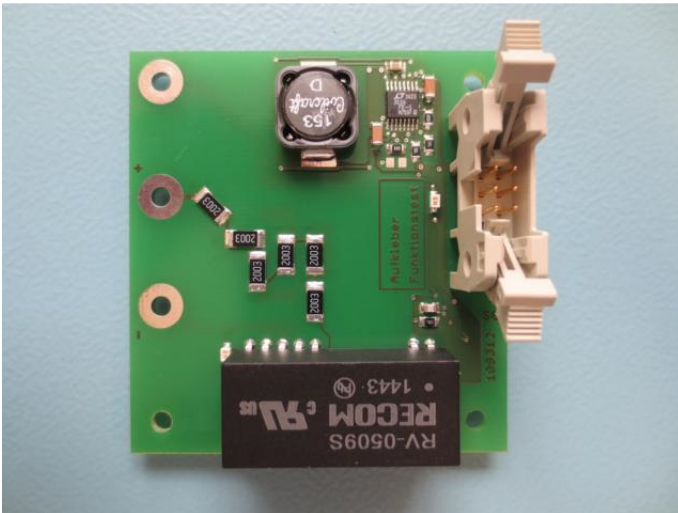


## Isolated Voltage Sensor

Preliminary Data Sheet Rev.1



- Up to 1200V DC Primary Voltage Range
- Galvanic Isolation up to 1200V DC
- High Primary Input Resistance: 1.2 MOhm
- Wide DC Auxiliary Supply Range 3V to 16V
- Integrated Y-capacitor can be enabled
- -40°C to 85°C at Free Convection
- 8mm Creepage Distance

Isolated Voltage Sensor

### Description

The MACCON Isolated Voltage Sensor has been developed to measure isolated or non-isolated DC-link voltages. It offers interesting features to build efficient motor-drives.

- **High impedance voltage sensing** with integrated primary side sense resistors allows voltage measurements at all high-voltage DC-links up to 1200V in a compact 59mm x 68mm package.
- **Wide auxiliary supply voltage range** from 3V to 16V allows connection of the supply to a logic supply, to an analog supply or directly to the gate-driver supply. A 3.3V supply is only recommended in a low-noise environment.
- **Galvanic isolation** up to 1200V operating voltage and 8mm creepage distance offer safe voltage-sensing in high voltage circuits, even in harsh environments.
- **Integrated Y-Capacitor** can be enabled by using metal spacers to mount the module on the chassis. The capacitor can be disabled by mounting the module (PE terminal) with isolated spacers with a minimum length of 8mm. The Isolated Voltage Sensor needs DC-link terminals and controller-GND on the same module, so using the Y-Capacitor inside the module is the most space-efficient way for the motor drive design.
- **Status LEDs for fast debug:** The green LED “PWR” indicates supply voltage on the high-voltage side. The red LED “HV” indicates measured voltages > 55VDC.

## Electrical characteristics

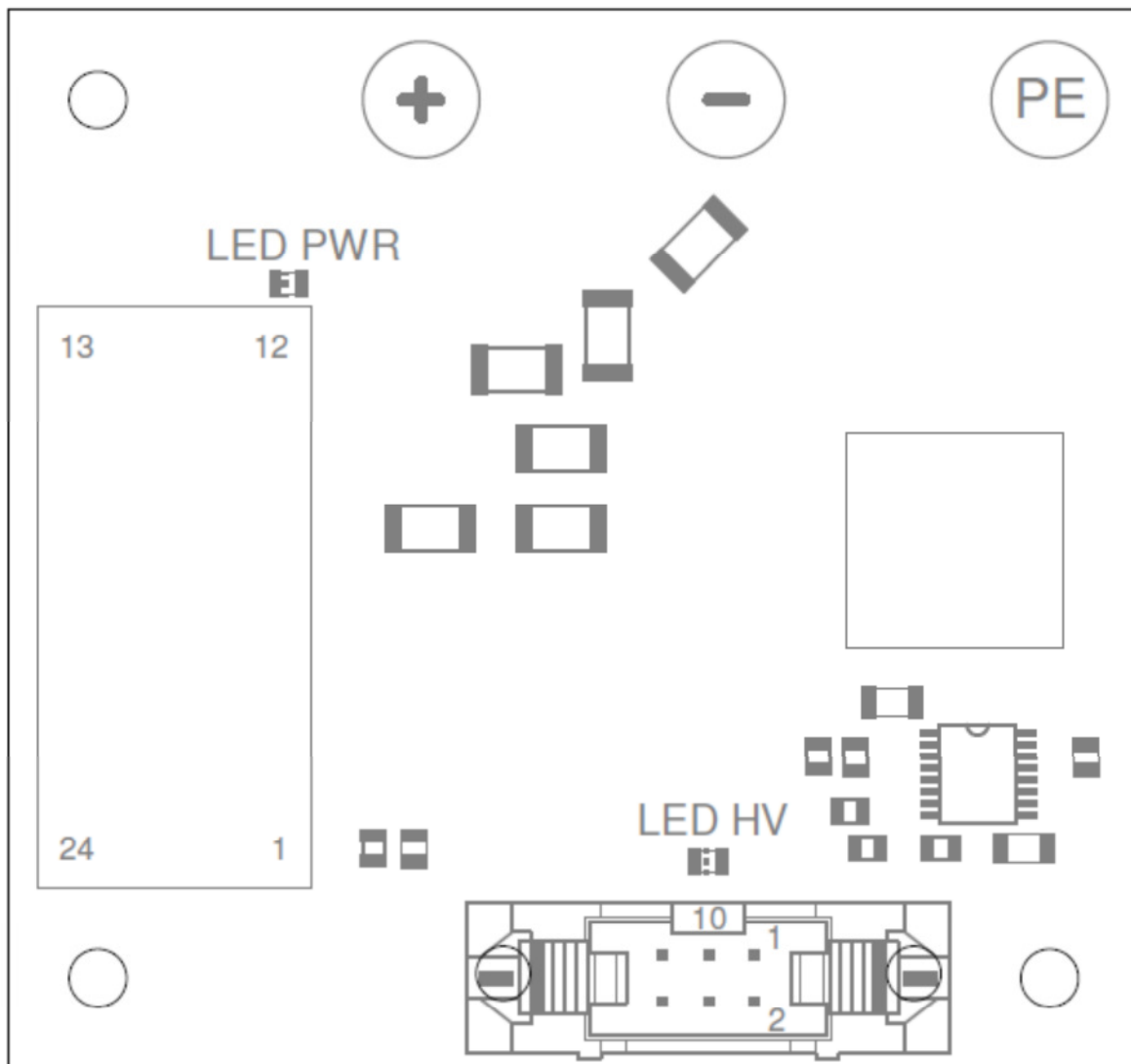
Parameter	Min.	Typ.	Max.	Unit
DC Supply Voltage Range	3		16	V
Peak Supply Voltage (Abs. Max.)			18	V
UVLO Threshold for Rising Supply Voltage		2,6		V
UVLO Threshold for Rising Supply Voltage		2,2		V
Quiescent Current Vcc = 3V		220		mA
Quiescent Current Vcc = 5V		155		mA
Quiescent Current Vcc = 15V		47		mA
Measuring Voltage Range	0		1200	V
Output Voltage Range independent from Supply Voltage	0		5,2	V
Input Resistance		1,2		MOhm
Gain (1200V Input -> 4,8V Output)		0,004		V/V
Error over Full Temperature Range (+/-)			1,5	%
Small Signal Bandwidth (Input = 20Vpp)			10	kHz
Internal Y-Capacitor		3,3		nF
Maximum dV/dt for Ta=25°C			10	kV/us
DC-Link Voltage, Isolation Working Voltage			1200	V
Creepage Distance	8			mm
Ambient Temperature at free Convection	-40		+85	°C
Storage Temperature	-40		+100	°C
Dimension W		63		mm
Dimension L		59		mm
Dimension H mounted on 10mm Spacers, Plugged Ribbon Cable		38		mm

Parameter Table

## Notes

- **Danger of hazardous voltages! Only trained and certified personal should use this device!**
- **AWG24 ribbon cable is required for the controller interface**
- **Ribbon interface cable should be as short as possible. Ribbon cables have only low voltage isolation, they must be safely isolated from high-voltage traces according to the required technical standards for the system.**
- **Maximum DC-Link Voltage and Driver Isolation: The test voltage of the driver isolation is 4250Vrms (6000Vpk). Before choosing this device for your application, please define the required supply voltage conditions including overvoltage category and perform an isolation coordination analysis for your system. Prevent excessive isolation testing, this will degrade Isolation!**

## Connection Diagram



## Ribbon Cable

Connection Diagram of Isolated Voltage Sensor Module

Connector Pin	Signal	Description
1, 4	Vcc 3V to 16V	Supply Voltage
2, 5	Signal Output	Output Voltage Signal
3, 6	GND	GND

Signal Table for 6-Pole Ribbon Cable Connector

Connector Pin	Signal	Description
+	HV+	Positive DC-Link Voltage
-	HV-	Negative DC-Link Voltage
PE	PE	PE connected to Chassis enables Y-Capacitor, PE isolated disables Y-Capacitor

Signal Table for Screw-Terminals