Irinos EC-TFV

Digital data acquisition for inductive probes

- ○ Interface for 4 or 8 inductive probes Tesa halfbridge and compatible ones

- ○ Very high accuracy and stability

- ○ Synchronous data acquisition up to 4,000 measurement values / s
  (all channels simultaneously)

- ○ Expandable with other Irinos-Boxes via EC-Link-Interface

- ○ With integrated ethernet interface for direct connection to PC

- ○ Attractive design due to internal connectors and wiring

Irinos EC-TFV

Proven measurement technology

The measurement electronic of the Irinos-Box EC-TFV is based on more than 30 years of experience with conditioners for inductive probes. These are worldwide recognized for their high accuracy and measurement stability.

Each measurement channel has its own input amplifier, using high-class analogue components. Data acquisition is done synchronously (no multiplexing required).

The measurement method uses the whole sine signal of the inductive probe. Compared to the widely used 1- or 2-point measurement, this method provides superior noise immunity (patent pending).

Pre-calibration

All measurement channels are pre-calibrated for the respective inductive probe type. Calibration of the Irinos-Box by the user is not required.

This enables an easy installation and a quick replacement of the Irinos-Box by an identical one.

Expansion

Multiple Irinos-Boxes can be connected via the EC-Link-Interface. It does not matter, whether they are of the same type EC-TFV or for other measurement inputs (e.g. for incremental encoders).

The EC-Link-Interface contains three different functionalities:

• Data-exchange between Irinos-Boxes

• Synchronisation of multiple Irinos-Boxes

• Power-supply for the Irinos-Boxes

8 Irinos-Boxes at a maximum can be connected in line topology to build up a whole measurement system.

The amount of Irinos-Boxes has no influence on reading the measurement values from the PC, except that more channels are available. All measurement values are transferred via a single ethernet connection from the Irinos-System to the PC. This allows an easy integration into Windows based measurement software (DLL available).

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Synchronous HighSpeed-Measurement

Many measurement applications require the realtime acquisition of various measurement channels, allowing further calculations (e.g. concentricity measurement).

With the Irinos-Box EC-TFV, it is possible to get 4,000 measurement values / s. This value is independent of the number of channels. It is for example possible to have a realtime measurement with 16 channels acquiring 16 * 4,000 values/s = 64,000 measurement values / s in total.

All measurement values are acquired synchronously and buffered in the internal memory of the Irinos-Box before they are transferred to the PC.

Galvanic Isolation

Each Irinos-Box has galvanic isolation.

The galvanic isolation from the power supply ensures that external noise will not influence the measurement electronics.

Additionally the ILink-Interface has galvanic isolation, which allows for a robust communication between multiple Irinos-Boxes. Further it avoids ground loops or similar negative effects.

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Specifications

Inputs for **inductive probes**	
Probe types	Depends on Box type
Number of channels	4 or 8 inductive probes directly connected
Channel setup	4 or 8 independent input channels (no multiplexing -> no settling time)
Synchronisation	Simultaneous acquisition of all measurement channels (jitter using one Irinos-Box: 0ns; jitter using multiple Irinos-Boxes: < 50 μs)
Calibration	Pre-calibration of all measurement channels. No calibration of the measurement channels required by the customer.
Measurement method	Integrating for high noise immunity
Measurement speed	4,000 measurement values / s independent of the number of channels

Inputs for inductive probes **Tesa halfbridge and compatible**	
Measurement range	± 2000 μm with Tesa GT21 / GT22 (if supported by probe) ± 5000 μm with Tesa GT61
Resolution	0.0625 μm
Stability	0,2 μm typical with Tesa GT21
Input impedance	2 kOhm
Sine-oscillator	13.4 kHz 3 V_{eff}

Sine oscillator	
Implementation	Shared among all measurement channels, extremely low DC part
Short circuit protection	yes
Voltage-controlled	yes

Power supply	
Rated voltage	24 V DC ± 10 %
Reverse voltage protection	yes
Power conscumption	ca. 2 watt
Coupling	galvanic isolation
Forwarding	If multiple Irinos-Boxes are used, the power-supply is forwarded via the EC-Link-Interface to all Irinos-Boxes (no separate power supply required).

Use a separate power supply for the Irinos system.

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Ethernet-Interface	
Connector	RJ45 8-pin (Ethernet standard)
Speed	100 MBit/s (auto-negotiation)
	Auto-Crossover

Casing	
	Aluminium designer housing, black anodized, rear plate stainless steel, front plate black powder coated
Dimensions	85 x 120 x 49 mm (H x W x D)
Protection class	Similar to IP54
Mounting (standard)	Via 2 screws M4
Mounting options	○ adaption for DIN rail mounting

Miscellaneous	
Temperature range	operation: 0 - 50 °C / storage: -20 - 70 °C
Status indication	Status-LED, Error Led for probes, Ethernet-LED
Expansion	System expansion up to 8 Irinos-Boxes via EC-Link-Interface. Combinable with other inputs, e.g. for incremental encoders.
Connection to PC	Standard ethernet. DLL available for easy integration into PC software (Windows based). Alternatively an ASCII-based interface is available.

Irinos EC-TFV

Ordering information

Irinos-Boxes IR-TFV for inductive probes Tesa and compatible	
Order-No.	Description
828-6050	**EC-TFV-8-TESA-M16-EPI** **8 channel Tesa** and compatible Measuring range depending on probe type, e.g. ± 2000 µm with Tesa GT22, integrated Ethernet interface for direct connection to PC
828-6051	**EC-TFV-4-TESA-M16-EPI** **4 channel Tesa** and compatible Measuring range depending on probe type, e.g. ± 2000 µm with Tesa GT22, integrated Ethernet interface for direct connection to PC

Accessories labelling and mounting	
Order-No.	Description
828-6150	**EC-MHRM-1** Adapter for DIN rail mounting

Ethernet cables	
Order-No.	Description
828-6181	Ethernet cable **Length 2m,** 2 x RJ45
828-6182	Ethernet cable **Length 5m,** 2 x RJ45
828-6183	Ethernet cable **Length 10m,** 2 x RJ45
828-6184	Ethernet cable **Length 15m,** 2 x RJ45

Accessories EC-Link connection cable between multiple Irinos boxes	
Please note: the maximum bus length of each Irinos system is 10m.	
Order-No.	Description
828-6200	**Internal** ECLink connection cable **EC-LINK-001** Length ca. 0.15 m This cable is wired internally between 2 Irinos boxes and is not visible from the outside.
828-6201	ECLink connection cable **EC-LINK-005** **Length ca. 0.5 m**
828-6202	ECLink connection cable **EC-LINK-015** **Length ca. 1.5 m**
828-6203	ECLink connection cable **EC-LINK-030** **Length ca. 3 m**

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Desktop Power supply 60W, Input 115/230V AC 50/60 Hz	
Order-No.	**Description**
828-6130	Desktop power supply with **power cord for EU** C13 to „Schuko" - connector (Type F)
828-6131	Desktop power supply with **power cord for USA/Mexico** C13 to NEMA 5 connector (Type B)
828-6132	Desktop power supply with **power cord for India** C13 to connector BS546 (Type D)
828-6133	Desktop power supply with **power cord for Switzerland** C13 to connector SEV1011 (Type J)
828-6134	Desktop power supply with **power cord for United Kingdom** C13 to connector BS1363 (Type G)

Other power cords on request.

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