



# Operating Instructions

Translation of the original operating instructions



## Differential Pressure Indicator

HI-D-024-.../2

To avoid injuries and damage, read these operating instructions thoroughly and attentively.  
Retain it for further reference.

Additional operating instructions in other languages can be downloaded at [www.stauff.com/hi-d/manuals](http://www.stauff.com/hi-d/manuals)

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# 1 Introduction

The differential pressure indicator HI-D 024 is used to monitor the capacity of oil filters in oil-circulating systems. For this purpose, a microprocessor-controlled pressure sensor observes the differential pressure at the filter element. The pressure increases depending on the cumulative clogging of the filter. To avoid false alarms due to high viscosity during start-up, the device is equipped with a temperature control and time delay function.

## 2 Safety information

Before you work with the indicator, read and heed the information in these operating instructions. Failure to follow the instructions provided, especially the safety information, can pose a danger to humans, the environment, and other equipment.

The sensor represents the state of the art in terms of accuracy, operating principle as well as safe and reliable operation.

- ▲ Check that the technical data matches the application parameters!
- ▲ Check the completeness of delivery!
- ▲ Comply with existing national regulations for accident prevention and safety at the workplace when working!
- ▲ Note the IP protection rating when using the sensor in what areas
- ▲ Allow only trained technical personnel to install the sensor!
- ▲ Comply with the specified tightening torques!
- ▲ Do not apply any force to the sensor!
- ▲ Please do not assemble the sensor while your system is pressurized!
- ▲ Never use a damaged or defective indicator!

## 3 Intended use

The indicator has been designed to monitor the capacity of oil filters in oil-circulating systems.

Any other application beyond the above use of the sensor is prohibited, can result in accidents or destruction of the indicator and immediately voids any and all warranty claims against the manufacturer.

### 3.1 Misuse

The indicator does not comply with Directive 2014/34/EU and for this reason may not be used in potentially explosive atmospheres.

### 3.2 Technical personnel

These operating instructions are intended for trained technical personnel who are familiar with the applicable regulations and standards in the field of application. The technical personnel entrusted with commissioning and operating the device must have suitable qualifications. The qualifications can be acquired in the form of training or appropriate instruction.

The technical personnel must be familiar with the content of these operating instructions, which must always be accessible.

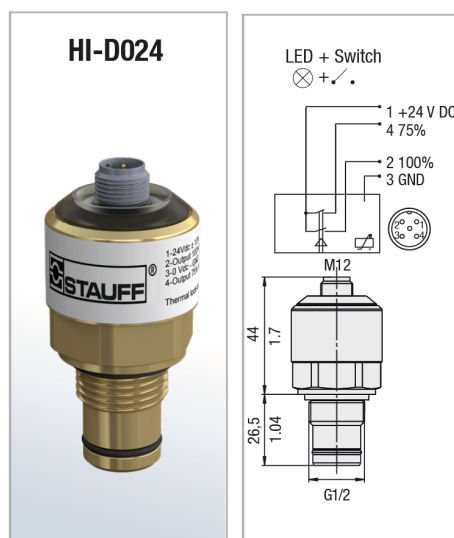
**For Service, repair or additional questions of the indicator please contact your STAUFF sales branch.**

## 4 Installation

- ▲ Installation of the device shall be performed by trained staff only, that are familiar with the safety requirements and risks!
- ▲ Please make sure that the device is properly mounted to avoid malfunctions.
- ▲ Please do not assemble while the system is pressurized! Release pressure before mounting the indicator!
- ▲ Observe specified torque when fitting the indicator

The indicator uses 24V direct current for operation. The sensor is supplied with a cable connected by a M12 connector. Pin assignment is shown in the figure below. Max. output current is 0,2 A at 24V DC.

### Technical data and Functions



All dimensions in mm/in.

### Alarm outputs (visual)

Range (%FS)	Color	T > T* (Thermo-stop)
0-50	green	
50-75	yellow	
75-100	orange	
100	red (flashing)	
T < T* (Thermo-stop)		
0-100	blue	

T = Temperature

T\* = 20 °C / 68 °F

Connection Thread	G1/2
Torque	50-70 Nm
Operating Pressure	Max. 420 bar / 6000 PSI
Differential Pressure	Max. 200 bar / 2900 PSI
Temperature Range	-20°C...+80°C / -4°F...+176°F ready for operation >20°C / 68°F
Protection Rating	IP 67
Rated Capacity	Max. 0,2A, 24V DC
Operating Voltage	24 V DC
Alarm Outputs (electrical)	$\Delta p = 75\%$ (Pin 4) = 3,8 bar / 55,1 PSI $\Delta p = 100\%$ (Pin 2) = 5 bar / 72,5 PSI
Alarm Outputs (optical)	see table above!
Time activate	3s
Time response	max. 0,4s
Accuracy at 25°C/77°F	max. $\pm 5\%$ FS
Thermal drift (range 20°-70°C/68°F-158°F)	$\pm 6\%$ FS (after time response)
Materials	Body = Brass Sealing = NBR (Buna-N®)

## 5 Maintenance

The indicator is maintenance-free and cannot be repaired by the user. In the event of a defect, the indicator must be returned to the manufacturer for repair.

## 6 Troubleshooting

Problem / Failure	Possible cause	Solution
Blue light continuously	- Oil is below 20°C / 68°F	- Getting oil above 20°C /
Alarm output 2 activated and red LED's flashing	- Filter element is clogged	- Replace filter element
Another light is coming up as in chapter 4 is mentioned	- Incorrect wiring of the sensor	- check wiring

## 7 Repair, Disposal

By any irregularity see chapter 6 for troubleshooting. If you need help or more information, please contact Walter Stauffenberg GmbH & Co. KG, your local STAUFF branch office or your local dealer

### NOTE

Risk of material damage from aggressive and chemically etching substances.

Never use abrasive or volatile cleaners!

Do not use sharp objects or aggressive cleaners!

### Recycling in compliance with WEEE

After purchasing our product, you have the opportunity to return the instrument to the sales branch at the end of its life cycle.



The EU Directive 2002/96 EC (WEEE) regulates the return and recycling of old electrical and electronic devices. As of 13/8/2005, manufacturers of electrical and electronics equipment in the B-2-B (business-to-business) category are obliged to take back and recycle electrical devices free of charge that have been sold after this date. After that date, electrical devices must not be disposed of through the "normal" waste disposal channels. Electrical equipment must be disposed of and recycled separately. All devices that fall under this directive must feature this logo.

## 8 Declaration of Conformity

### EU-Konformitätserklärung EU-Declaration of Conformity



im Sinne der EU-Richtlinie elektromagnetische Verträglichkeit 2014/30/EU  
Following the EU directive the electromagnetic compatibility 2014/30/EU

#### Hersteller / Manufacturer

Walter Stauffenberg GmbH & Co.KG

Im Ehrenfeld 4

DE - 58791 Werdohl

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

#### Beschreibung und Identifizierung des Produkts / Product description and identification

Produkt / product Verschmutzungsanzeiger / Clogging Indicator

Typ / type HI-D-024-.../2

Es wird ausdrücklich erklärt, dass das Produkt allen einschlägigen Bestimmungen der folgenden EU-Richtlinien bzw. Verordnungen entspricht / It is expressly stated that the product complies with all the relevant requirements of the following EU directives:

2014/30/EU (EMV/EMC) Elektromagnetische Verträglichkeit / Electromagnetic Compatibility

2011/65/EU (RoHS II) in Verbindung mit / in conjunction with (EU) 2015/863 Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten / Restriction of the use of certain hazardous substances in electrical and electronic equipment

#### Fundstelle der angewandten harmonisierten Normen / References to the applied harmonised standards:

EN 61326-1 Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV- Anforderungen – Teil 1: Allgemeine Anforderungen / Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

EN 61326-2-3:2013 Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen – Teil 2-3: Besondere Anforderungen - Prüfanforderung, Betriebsbedingungen und Leistungsmerkmale für Messgrößenumformer mit integrierter oder abgesetzter Signalaufbereitung / Electrical equipment for measurement, control and laboratory use - EMC requirements – Part 2-3: Particular requirements – Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

EN 50581:2012 Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe / Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Waldo, 27.6.2020

Ort, Datum / place, date



Unterschrift / signature (Carsten Krenz (Geschäftsführer/General Manager))