

Vibration Control Type 642



Standard

Zone-22 

Instruction Manual

English

Instruction Manual

Vibration Control Type 642

Standard

Zone-22

Edition: 08.06.10

Attention!

Before Start-Up Procedure the Instruction Manual must be read and understood!

Should any question arise, please contact:

HAUBER-Elektronik GmbH
Fabrikstraße 6
D-72622 Nuertingen
Germany
Phone.: +49 (0) 7022 / 62393
Fax: +49 (0) 7022 / 64143
info@hauber-elektronik.de
www.hauber-elektronik.de

Content

1 Safety Informations.....	4
2 Instruction Manual Scope	5
3 The Vibration Control Type 642.....	5
Standard, Zone-22	
4 Intended Use	5
5 Documents and Certificates	5
6 Responsibility for the Safe Operation / Disclaimer	5
7 Application Fields	6
8 Delivery Contents	6
9 Electrical Data	7
10 Mechanical Data.....	8
11 Connections.....	9
12 Functional Description	10
13 Limit Value Adjustment.....	10
14 Mounting and Demounting	11
14.1 Fastening at the Mounting Surface	11
14.2 Zone-22 - Fastening Safety Clip / Protective Cover	12
15 Installation and Start-Up	13
16 Maintenance and Repairs.....	13

1 Safety Instructions

In General

The safety instructions serve the protection of persons and things from damage and danger that arise from not intended use and further misuse of products especially in explosion endangered areas. Therefore read the instruction manual carefully, before working with or starting-up the product. To the operating personnel the instruction manual has to be accessible anytime.

Before the starting-up or miscellaneous works with the product please check, whether all the documents are available completely. If not all the documents are committed completely or further copies are required, they can be obtained in different languages.

Our product is designed to the latest state of the art. Nevertheless there are a number of residual risks. This means that each person in the operators firm, concerned with mounting and dismounting, installation, start-up, operating or maintenance of the product, has to have read and understood the instruction manual.

This means furthermore that each person in the operators firm, concerned with mounting and dismounting, installation, start-up, operating or maintenance of the product, has to be an authorized expert, familiar with the safety instructions for handling electrical components. For handling ATEX-certified products within explosion endangered surroundings the expert in addition has to be familiar with the safety instructions relevant there.

Used Symbols



This symbol indicates an explosion hazard.



This symbol indicates a risk from electrical current.



This symbol indicates an (non-safety relevant) information.

2 Instruction Manual Scope

The present instruction manual of the Vibration Control Type 642 is applicable for the variants: Standard and Zone-22.

The functionality of the variants is identical. In addition the variants have certifications and labellings, that allow operation in explosion endangered areas. (see chap. 7, Operation Areas)

3 Vibration Control Type 642

The Vibration Control Type 642 ist applied for measurement and control of machines absolute bearing vibration, referring to DIN ISO 10816. Measurement parameter is the root mean square (rms) of the vibration velocity.

The Type 642 works with an integrated relay. On exceeding the vibration limit-value and after the delay-time has expired the relay droppes out. The limit-value is adjustable through DIP-switch; the delay-time through potentiometer.

4 Intended Use

The Type 642 serves as protection for machines and mechanical equipment against undue mechanical vibrations. Fielding is only valid within the specification of the datasheet.

It exclusively serves for measurement of mechanical vibrations.

Main areas of application: Industrial fans, ventilators, blowers, electric motors, pumps, centrifuges, seperators, generators, turbines, and similar, oscillating mechanical equipment.

5 Documents and Certificates

Subsequent Type 642 Documents und Certifikates can be consulted on www.hauber-elektronik.de:

- EC-Conformity-Declaration
- Statement-of-Conformity ATEX-Zone 22, no.: LU 06 ATEX 0031X


6 Responsibility for the Safe Operation / Disclaimer

The correct layout of the electrical plant under conditions of explosion protection, as well as the correct switch on procedure, is the sole responsibility of the user of the plant.

The current valid explosion protection rules and security regulations must be adhered to and must be under given circumstances checked by a competent person. Should the plant on the order of the user be erected by a subcontractor, the plant must only be switched on after the subcontractor has submitted an installation certificate as prove of the correct nature of the installation, according to the relevant valid regulations.

The primary switch on of explosion protected plants or part of plants, as well as the subsequent switch on after major adjustments or maintenance work, must be reported to the relevant authorities by the owner.

7 Application Fields

Variant	Application Fields	Labelling
Standard	None explosion endangered Areas	none
Zone-22	Explosion endangered Areas Zone 22	 II 3D IP 5X 125 °C

8 Delivery Contents

Variant	Delivery Contents
Standard	<ul style="list-style-type: none"> • Vibration Control Type 642 • Instruction Manual
Zone-22	<ul style="list-style-type: none"> • Vibration Control Type 642 • Protective Cover for M12-Plug • Safety Clip • Instruction Manual

9 Electrical Data



The housing cover may only be unscrewed, if the Type 642 is either separated from the mains or no explosion endangered atmosphere exists. Otherwise danger of explosion because of sparking, when the ATEX-certified Type 642 is operating in explosion endangered areas!

Before Starting-Up Type 642, the mains must be secured with a microfuse (time delay, 100 mA, breaking capacity C)!

Measuring range:

0,5... 7,5 mm/s
 1... 15 mm/s
 2... 30 mm/s
 4... 60 mm/s
 8... 120 mm/s



Note: Each Type 642 has one of the listed measuring ranges. Further ones on request.

Measuring accuracy:

± 5%

Frequency range:

5 Hz...1000 Hz

Output signals:

Relay contact (Maker/Breaker)

Relay switching duty:

2A / 30V AC/DC

Voltage supply:

24V DC +20% / -15%

Power input (max.):

75 mA

Shock (max.):

1000 g

Operating temperatur range:

-20°C...+85°C

Fusing:

Microfuse (time delay, 100 mA, breaking capacity C)

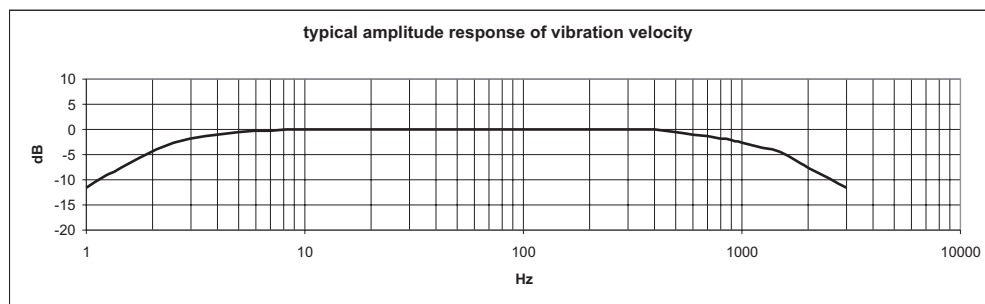


Fig. 1: Frequency range 5 Hz...1000 Hz

10 Mechanical Data

Housing Material:

M12-connector material:

Fastening:

Securing:

Weight:

Protection Style:

Aluminium GD AL Si 12 / DIN 1725

CuZn (brass), nickel plated

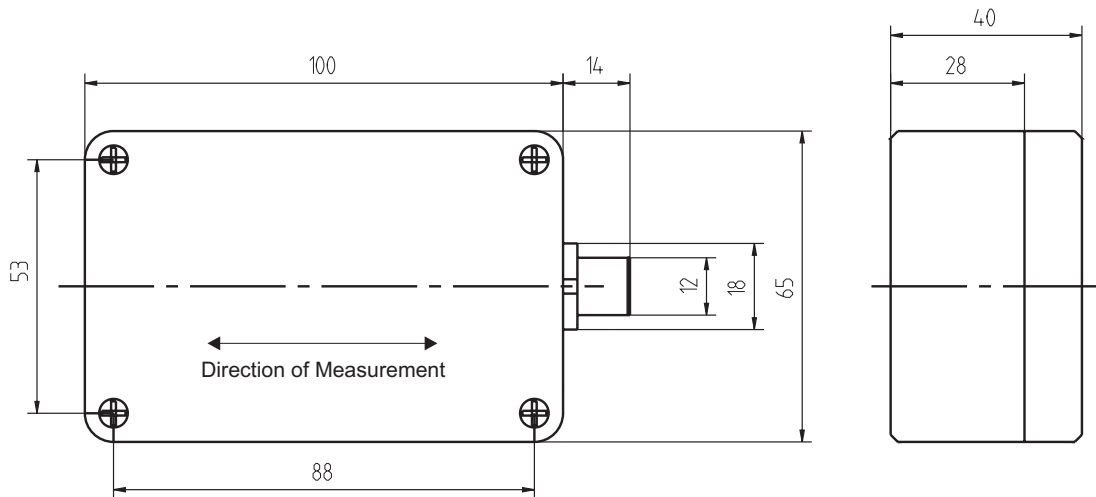
4 x M4 in Grid 88 x 53 mm

The sensor must be earthed via the M4 fastening (see chapt.15).

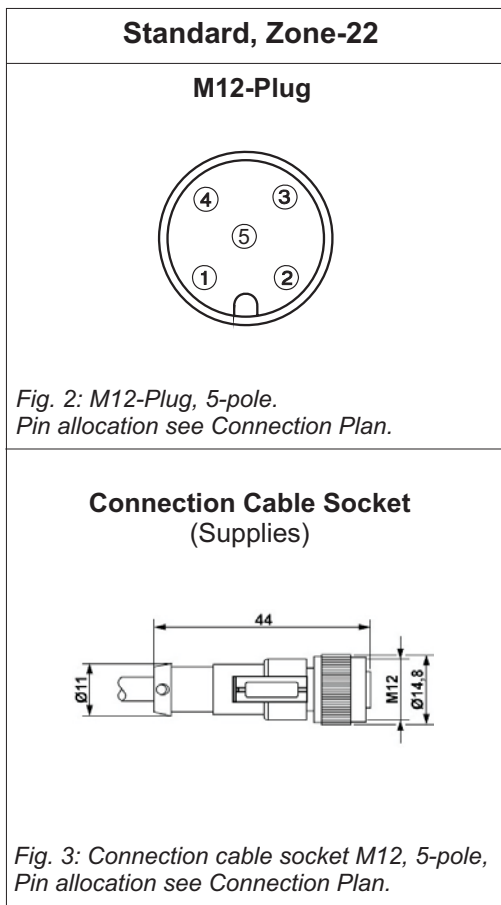
ca. 400 g

IP 66

Housing Dimensions and Direction of Measurement



11 Connections



Connection Plan for both Variants

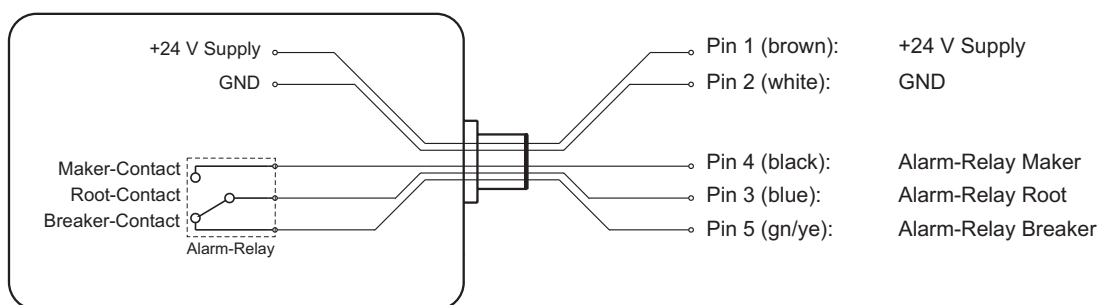


Fig. 4: Connection Plan Type 642



Note: Displayed in the Connection Plan is the Alarm Condition resp. Currentless Condition!
I.e., Breaker- and Root-Contact of the Alarm-Relay are connected.

12 Functional Description



The housing cover may only be unscrewed, if the Type 642 is either separated from the mains or no explosion endangered atmosphere exists. Otherwise danger of explosion because of sparking, when the ATEX-certified Type 642 is operating in explosion endangered areas!

The Vibration Control Type 642 ist applied for measurement and control of machines absolute bearing vibration. On exceeding the vibration limit-value and after the delay-time has expired the relay droppes out. The limit-value is adjustable through a 15 step DIP-switch; the delay-time through potentiometer between 1...25 sec..

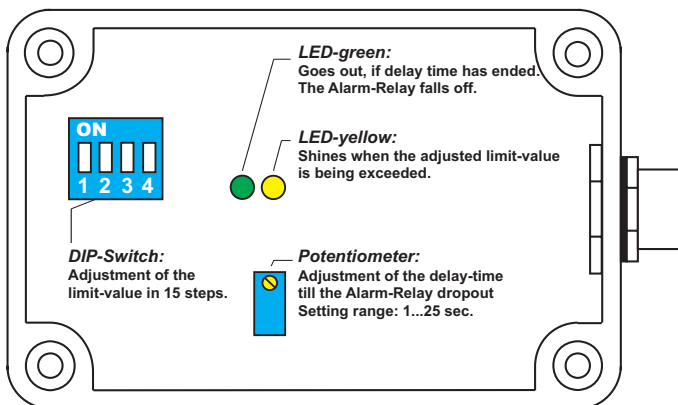


Abb. 5: Adjustment-Elements and LED-Indicators

13 Limit Value Adjustment

DIP-Switch				Limit-Values				
Binary (1=ON)				Range	Range	Range	Range	Range
1	2	3	4	0,5...7,5 mm/s	1...15 mm/s	2...30 mm/s	4...60 mm/s	8...120 mm/s
0	0	0	0	0,0	0	0	0	0
1	0	0	0	0,5	1	2	4	8
0	1	0	0	1,0	2	4	8	16
1	1	0	0	1,5	3	6	12	24
0	0	1	0	2,0	4	8	16	32
1	0	1	0	2,5	5	10	20	40
0	1	1	0	3,0	6	12	24	48
1	1	1	0	3,5	7	14	28	56
0	0	0	1	4,0	8	16	32	64
1	0	0	1	4,5	9	18	36	72
0	1	0	1	5,0	10	20	40	80
1	1	0	1	5,5	11	22	44	88
0	0	1	1	6,0	12	24	48	96
1	0	1	1	6,5	13	26	52	104
0	1	1	1	7,0	14	28	56	112
1	1	1	1	7,5	15	30	60	120

Example: Range e.g.: 2...30 mm/s
 DIP-Switch Pos.:
Limit-Value: 14 mm/s

14 Mounting and Dismounting

Mounting and Dismounting works at and with the Control may only be executed by an authorized expert, familiar with the safety instructions for handling electrical components. For handling ATEX-certified controls within explosion endangered surroundings the expert in addition has to be familiar with the safety instructions relevant there.



Before mounting and dismounting works the control has to be separated from the mains! Separated plug and socket devices always have to be disconnected from the mains! Otherwise danger of explosion because of sparking, when operating ATEX-certified Types 642 in explosion endangered areas!



The control housing must be earthed via its fastening - i. e. via machine earth or via a separate earth wire (PE)!

14.1 Fastening at the Mounting Surface

Preconditions

- Mounting surface clean and flat, i.e. free from paint, rust, etc.
- Threaded holes at the Mountingsurface: 4 x M4

Tools and Material

- Cheese-head screws 4 x M4
- (Phillips-tip-) Screwdriver

Working Steps

1. Unscrew housing cover from housing base.
 - (Phillips-tip-) Screwdriver
2. Fasten control friction-locked at the mounting surface by use of 4 Cheese head screws.
3. Tighten housing cover on housing base.
 - (Phillips-tip-) Screwdriver

11.2 Zone-22 - Fastening Safety Clip / Protective Cover



The operation of variant Zone-22 is not permitted without the safety clip, to avoid accidentally disconnecting the plug-in connection! Otherwise danger of explosion because of sparking, when operating in explosion endangered areas!

Fastening Safety Clip

1. Plug in the connection cable socket into the M12-plug completely.
(Pay attention to the code cam!).
2. Tighten firmly the lock-nut of the connection cable socket by hand.
3. Fasten the safety clip against accidental disconnection of the plug connection:
 1. Put both shell halves of the safety clip around the plug connection.
 2. Press together by hand both shell halves of the safety clip until the catch lock snaps in.
 3. Put the arrow connected to one shell half around the cable, then stick it through the eye on the other end, so that the notice sign is readable alongside the cable.

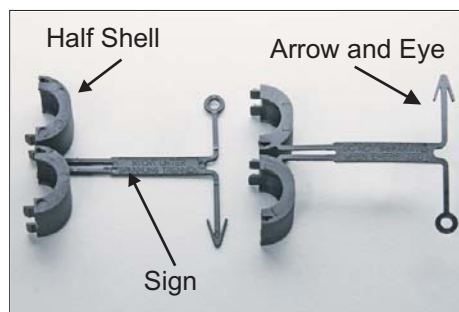


Fig. 7: Safety Clip

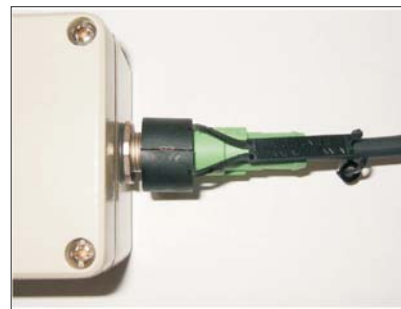


Fig. 8: Fastened Safety Clip

Fastening Protective Cover

After disconnecting the plug connection the protective cover has to be mounted!

Disassemble the safety clip and mount the protective cover:

1. Disconnect mains / electric circuit.
2. Separate both shell halves of the fuse clip with a screw driver.
3. Fasten protective cover and skrew it tightly onto the sensor plug.



Fig. 9: Protective Cover



Fig. 10: Fastened Protective Cover

16 Installation and Start-Up

Installing and starting-up the control may only be executed by an authorized expert, familiar with the safety instructions for handling electrical components. For handling ATEX-certified controls within explosion endangered surroundings the expert in addition has to be familiar with the safety instructions relevant there.



Starting-up may only be executed with correctly tightened housing cover. Otherwise danger of explosion because of sparking, when operating ATEX-certified Types 642 in explosion endangered areas!



Prior to starting-up the Type 642, the mains must be secured with a microfuse (time delay, 100 mA, breaking capacity C)!

The connection cable and possible extension cables must be protected against electrical influences and mechanical damages. Here local regulations and commissions absolutely have to be considered.

17 Maintenance and Repair

Repairing the control may only be executed by an authorized expert, familiar with the safety instructions for handling electrical components. For handling ATEX-certified controls within explosion endangered surroundings the expert in addition has to be familiar with the safety instructions relevant there.



Prior to repair and cleaning works the Type 642 has to be separated from the mains! Separated plug and socket devices always have to stay disconnected from the mains! Otherwise danger of explosion because of sparking, when operating ATEX-certified Type 642 in explosion endangered areas!



Defective connection cables immediately have to be replaced! Otherwise danger of explosion because of sparking, when operating ATEX-certified Types 642 in explosion endangered areas!

A defective control has to be changed completely!



Note: The Type 642 and its variants are maintenance free!

Errortable

Error	Cause	Activity
In active idle state, the green LED does not shine	No power-supply	Check connection
	Connection-cable interruptive	Replace connection-cable
	Plug defective	Replace plug
	Fuse defective	Replace fuse
	Connections mixed up	Connect correctly
	Device defective	Replace device
Relay contact does not switch	No power-supply	Check connection
	Connection-cable interruptive	Replace connection-cable
	Plug defective	Replace plug
	Fuse defective	Replace fuse
	Connections mixed up	Connect correctly
	Device defective	Replace device
	Wrong limit-value adjusted	Adjust correct limit-value