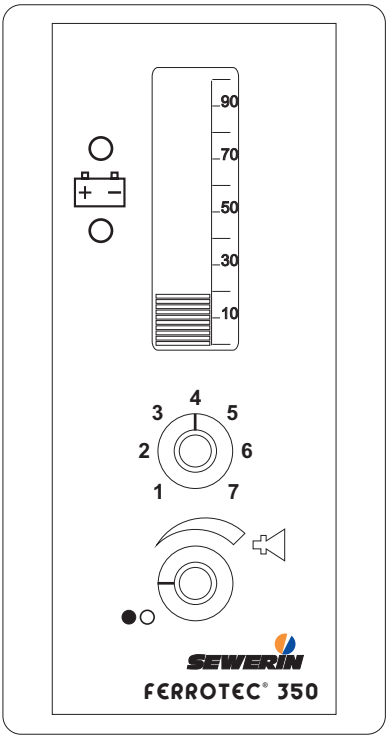
FERROTEC® 300
FERROTEC® 350 (with Display)

Operating Instructions



SEWERIN
Technologies for leak detection.

Measurable success by Sewerin equipment

Congratulations. You have chosen a quality instrument manufactured by Hermann Sewerin GmbH.

Our equipment will provide you with the highest standards of performance, safety and efficiency. They correspond with the national and international guide-lines.

Please read and understand the following operating instructions before using the equipment; they will help you to use the instrument quickly and competently. If you have any queries we are available to offer advice and assistance at any time.

Yours

Hermann Sewerin GmbH
Robert-Bosch-Straße 3
33334 Gütersloh, Germany
Tel.: +49 5241 934-0
Fax: +49 5241 934-444
www.sewerin.com
info@sewerin.com

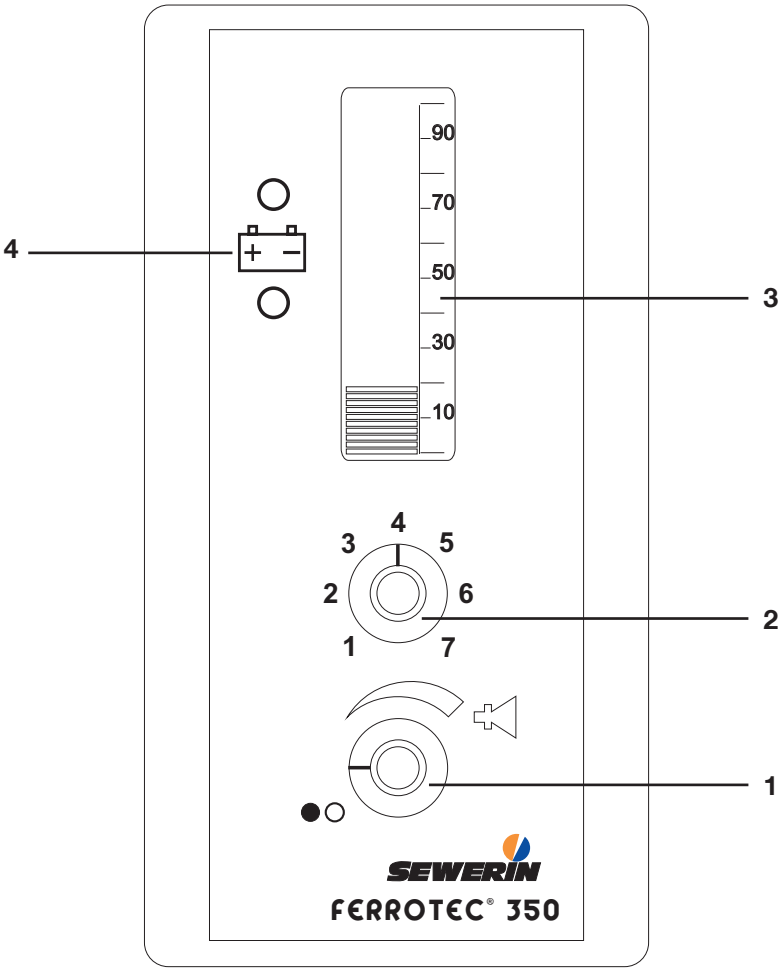
Sewerin USA LLC
2835 Haddonfield Road
Pennsauken, NJ 08110-1108
Phone: +1 215-852-8355
Fax: +1 856-662-7070
www.sewerin.net
sewerin-usa@sewerin.net

SEWERIN SARL
17, rue Ampère – BP 211
67727 HOERDT CEDEX, France
Tél. : +33 3 88 68 15 15
Fax : +33 3 88 68 11 77
www.sewerin.fr
sewerin@sewerin.fr

Sewerin Ltd
Hertfordshire
UK
Phone: +44 1462-634363
www.sewerin.co.uk
info@sewerin.co.uk

SEWERIN IBERIA S.L.
Centro de Negocios Eisenhower
Avenida Sur del Aeropuerto
de Barajas 24, Ed. 5 Of. 2C
28042 Madrid, España
Tel.: +34 91 74807-57
Fax: +34 91 74807-58
www.sewerin.es
info@sewerin.es

Sewerin Sp.z o.o.
ul. Annopol 3
03-236 Warszawa, Polska
Tel.: +48 22 519 01 50
Fax: +48 22 519 01 51
Tel. kom. +48 501 879 444
+48 608 01 37 39
www.sewerin.com
info@sewerin.pl


4
90
70
50
30
10
3
4
3
5
2
6
2
1
7
2
1
SEWERIN
FERROTEC® 350

Operating Instructions

FERROTEC® 300
FERROTEC® 350

23.10.2008 – V2.XXX – 102661 – en

To ensure reliable operation and safety, it is required to pay attention to the following notes.
Hermann Sewerin GmbH is not liable for damage caused by failure to comply with these notes. The guarantee and liability conditions of the sales and delivery conditions of Hermann Sewerin GmbH are not extended by the following notes.

- This product may only be taken into operation after reading thoroughly the accompanying operating instructions.
- This product may only be used for intended applications.
- This product is destined for industrial and commercial applications.
- Repairs may only be performed by the manufacturer or appropriately trained staff.
- The manufacturer is not liable for damage resulting from arbitrary modifications of the product.
- Only spare parts may be used which are approved by Hermann Sewerin GmbH.
- Only approved battery types may be used.

Technical changes within the scope of further development reserved.

Note:
This symbol refers to information and useful tips which are exceeding the basic operating procedures.

1 Designated purpose and function 1

2 Operation 2

3 Carrying 3

4 Notes on operation 4
4.1 Sensitivity 4
4.2 Location and shape of an object 4
4.3 Distinguishing between large and small objects 5
4.4 Highly magnetised objects 6
4.5 Searching in the vicinity of interference sources 6
4.6 Cast-iron pipes 7
4.7 Snow and water 7

5 Battery display/Changing the battery 8

6 Maintenance, malfunctions 9
6.1 Function testing 9

7 Accessories 10

8 Specifications 11

9 Appendix 12
9.1 Declarations of Conformity 12

1 Designated purpose and function

The **FERROTEC** is designed to locate concealed ferromagnetic objects (steel, iron, cast iron). It is particularly suitable for the location of valve rods, cap sills, metal shaft and tank covers, marking nails and marking magnets.

There are 2 sensors in the sensor rod which react to changes in the earth‘s magnetic field caused by ferromagnetic materials. The change in the earth‘s magnetic field does not reach maximum strength until the object has been motionless for several days or even weeks, so objects placed on the ground for testing purposes are often difficult to locate.
The **FERROTEC** design excludes interference and mislocation due to non-ferrous metals.

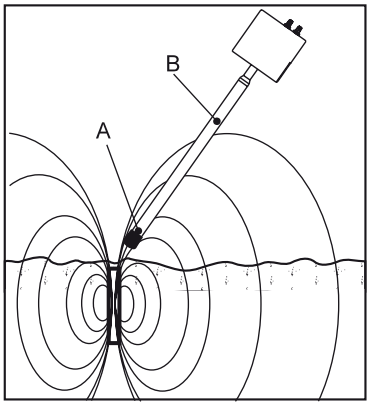


Fig. 1
Object in the ground, representation of magnetic-field lines. The magnetic field at the end of the sensor rod, sensor A, is not the same as at sensor B.

Differences in the earth‘s magnetic field increase with proximity to the object. This causes an indication in the form of a rise in the loudspeaker frequency. With the **FERROTEC 350** this increase is also shown in the bar-graph display. When the pitch is highest or the bar largest, the sensor rod is pointing at an object.

2 Operation

Note:
Please avoid wearing shoes with steel insoles or steel toe-caps when using the **FERROTEC** as these will disturb the location results.

- The device is switched on with the on/off switch (item 1). This also sets the required volume.
- Sensitivity is then set with the knob (item 2). The default setting is approximtely “4”.
- Check function by placing the **FERROTEC** close to a suitable object (e.g a car, an iron post or a hydrant cap which is not concealed). This must cause a rise in the pitch of the sound, plus (on the **FERROTEC 350**) a clear increase in the size of the bar-graph display (item 3). See „Battery display/Changing the battery“ and „Function testing“.
- After use the **FERROTEC** is switched off with the on/off switch (item 1).

3 Carrying

This illustration shows how the device should be carried:

The sensor rod should be kept as close as possible to the ground.

Once the presence of an object has been detected the **FERROTEC** should be held vertically. The exact location of the object is now determined by passing the device over the ground in the form of a cross.

4 Notes on operation

4.1 Sensitivity

If the object to be located is small or at a great depth, select a higher sensitivity (5 – 7 on the scale). If you wish to avoid interference from small objects, a low sensitivity (1 – 3 on the scale) should be selected.

Valve rods and street caps show up well at a depth of 30 cm when the sensitivity is set to “4”.

Practical tip: when attempting to locate a concealed manhole cover, first set the sensitivity by checking it against a similar visible cover.

4.2 Location and shape of an object

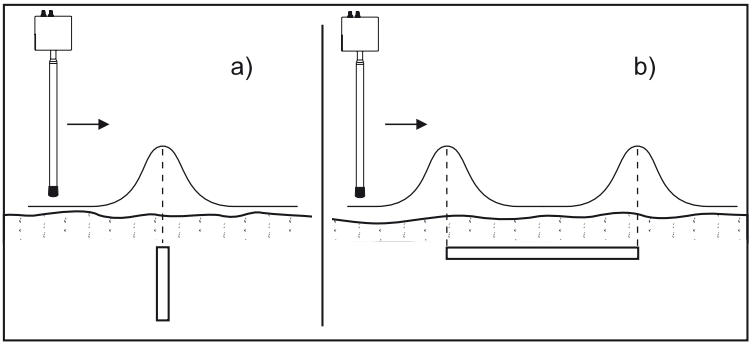


Fig. 2
Differing signals:
a) a maximum for a vertical object (e.g a marking pipe)
b) two maxima for horizontal objects (e.g a pipe or cover) at the edges or ends.

4.3 Distinguishing between large and small objects

This is important, because small objects like nails, screws and the like are displayed.

There are two ways of distinguishing between them.

- With small objects the display decreases more markedly as the distance increases than it does with larger objects.

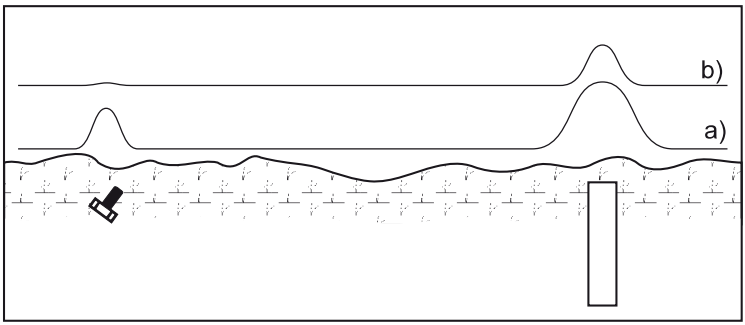


Fig. 3
Example: a screw and a boundary-mark pipe are displayed when the sensor rod is passed over the ground at a distance of 5 cm (a). At a distance of 30 cm - with the same sensitivity - only the boundarymark pipe is displayed (b).

- Larger objects appear broader in the display than smaller ones.

You should therefore vary the sensitivity setting and the distance of the sensor rod from the ground depending on the size of the object you are looking for.

4.4 Highly magnetised objects

With highly magnetised objects (for example marking pipes or permanent magnets) the **FERROTEC** may give apparently misleading readings. The following illustration shows the signal curve (C) of a highly magnetised object.

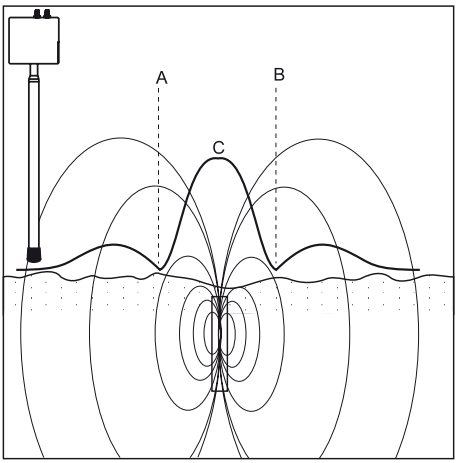


Fig. 4

The superimposition of the magnetic field of the object on that of the earth produces zones in which the effects cancel each other out. As a result the signal curve shows a minimum next to the object at A and B.

In practical use care should therefore be taken that the first change in pitch is not taken as an indication of the precise location. It is advisable to subject areas which have given the first indication to an extensive and critical search.

4.5 Searching in the vicinity of interference sources

In the vicinity of steel fences, grilles, vehicles and the like, interference naturally makes location difficult - if not impossible. Care should be taken to hold the device vertical and to set a low sensitivity.

4.6 Cast-iron pipes

It may be possible to locate cast-iron pipes if there is no interference and if they run more or less from north to south. They generate the strongest signal at the joints (sleeves).

Proceed as follows:

- Select maximum sensitivity.
- Hold the sensor rod vertically at a distance of 30 – 40 cm above the ground. Slowly walk the terrain, moving the sensor rod slowly.
- Approximately mark the display maxima.
- Search again directly above the ground with the sensor rod vertical.

The more the orientation of the pipe diverges from the north-south line, the more the location result may differ from there actual position.

4.7 Snow and water

The sensor rod is waterproof, so it can be used in snow or water.

5 Battery display/Changing the battery

The battery display (pos. 4) next to the battery symbol shows the battery capacity with two LED:

Green LED (above) flashes:	battery is in good order
Red LED (below) glows permanently:	battery is discharched, the battery has to be changed

A heavily discharged battery may reduce the sensitivity and dynamics of the acoustic signal. The battery should therefore be changed regularly.

The slotted-head screws on the side of the device are released by rotating them half a turn. The battery compartment under the cover is extracted for the battery to be removed. Make sure the cover is properly replaced to protect the battery from water.

6 Maintenance, malfunctions

No maintenance is necessary apart from changing the battery. In the event of malfunctions (no display, interrupted display), check the battery condition and make sure the battery is making proper contact with its holder.

6.1 Function testing

A function test may be carried out under the following conditions:

An iron rod 10 mm in diameter and 300 mm long, which has been in the ground in a vertical position for at least a week, must be detectable at a distance of about 50 cm at the maximum sensitivity setting.

7 Accessories

Carrying bag FERROTEC 300/350

Part-No.: 3204-0028

- with polyethylene insert

Headphones K3

Part-No.: EZ13-11000

- Robust and spray-protected headphones with changeable cushion.

8 Specifications

Operating-/storage temperature:	-20 °C – +70 °C
Total Length:	approx. 130 cm
Detection:	up to 1,5 m depth
Power supply:	Block battery (9V, 1200 mAh), operating time up to 18 hours
Protection type:	according to IP54, Sensor rod IP68
Visual display:	LCD bar-display with the **FERROTEC 350**)
Acoustic display:	integrated loudspeaker or headphones

9 Appendix

9.1 Declaration of Conformity

Konformitätserklärung / Declaration of Conformity

Gerätebezeichnung: *Type of Product:*	**Batteriebetriebenes Magnetometer** **battery operated magnetometric instrument**
Geräte-Typ: *Product Name:*	**Ferrotec 300**
Fabrikations-Nr.: *Fabr. No.:*	**051 11 xxxx**

Hiermit erklären wir, dass oben genanntes Produkt mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt. Bei einer mit uns nicht abgestimmten Änderung des Produkts verliert diese Erklärung ihre Gültigkeit.

We hereby declare that the above product complies with the following norms or standardized directives. In the event of any modification of this product which has not been authorized by us, this declaration becomes invalid.

Norm(en)/Norm(s):

DIN EN 61000-6 Teil 1 und 2	*EMV – Fachgrundnorm Störfestigkeit* *Generic Immunity Standard*
DIN EN 61000-6 Teil 3 und 4	*EMV – Fachgrundnorm Störaussendung* *Generic Emission Standard*

Gemäß den Bestimmungen der Richtlinie(n)/The unit complies with:

89/336/EWG	*EG-Richtlinie: Elektromagnetische Verträglichkeit* *EG-Directive: Electromagnetic Compatibility*
92/31/EWG	*Änderung dazu/amendment to above*
93/68/EWG	*Änderung dazu/amendment to above*

Gütersloh, den 24.10.2006

HERMANN SEWERIN GMBH

(Geschäftsführer/Managing Director)

Konformitätserklärung / Declaration of Conformity

Gerätebezeichnung: *Type of Product:*	**Batteriebetriebenes Magnetometer** **Battery operated magnetometric instrument**
Geräte-Typ: *Product Name:*	**Ferrotec 350**
Fabrikations-Nr.: *Fabr. No.:*	**051 12 xxxx**

Hiermit erklären wir, dass oben genanntes Produkt mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt. Bei einer mit uns nicht abgestimmten Änderung des Produkts verliert diese Erklärung ihre Gültigkeit.

We hereby declare that the above product complies with the following norms or standardized directives. In the event of any modification of this product which has not been authorized by us, this declaration becomes invalid.

Norm(en)/Norm(s):

DIN EN 61000-6 Teil 1 und 2	*EMV – Fachgrundnorm Störfestigkeit* *Generic Immunity Standard*
DIN EN 61000-6 Teil 3 und 4	*EMV – Fachgrundnorm Störaussendung* *Generic Emission Standard*

Gemäß den Bestimmungen der Richtlinie(n)/The unit complies with:

89/336/EWG	*EG-Richtlinie: Elektromagnetische Verträglichkeit* *EG-Directive: Electromagnetic Compatibility*
92/31/EWG	*Änderung dazu/amendment to above*
93/68/EWG	*Änderung dazu/amendment to above*

Gütersloh, den 24.10.2006

HERMANN SEWERIN GMBH

(Geschäftsführer/Managing Director)

Hermann Sewerin GmbH
Robert-Bosch-Straße 3 · 33334 Gütersloh · Germany
Telefon +49 5241 934-0 · Telefax +49 5241 934-444
www.sewerin.com · info@sewerin.com

23.10.2008 b – 102661 – en