



Rat control with

ToxProtect®

Efficient, Innovative, Patented.

Successful rat control

What this means:

- Protecting the environment from toxins
- Reduction of rodenticides by ca. 90 %
- Cost effective
- Occupational safety
- Compliant with laws and regulations

Our models **ToxProtect**® **1402**, **1602** and **1701** are the first systems worldwide that work with chemical agents while using cloud based technology and therefore networked rat control.

We value **reliable partnerships at eye level** as the basis for **mutual success**.

Notice of recognition for ToxProtect® 1402

With the official letter, dated January 13 2022, it has now been confirmed: After a thorough examination, the German Federal Environmental Agency (UBA) issued the notification of recognition for our ToxProtect® 1402 product in

accordance with § 18 of the Infection Protection Act. This marks its inclusion in the list of products/processes combating health hazards caused by the Rodents II category. This covers migratory rats (rattus norvegicus) found in the wastewater network.



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All cities, municipalities and operators of wastewater treatment plants are legally obliged to combat rats. Rats are carriers of diseases which are dangerous to human health if transferred. In addition to this risk, rats can cause extensive damage to buildings and infrastructure.

General conditions

Rat control is usually carried out through use of chemical agents and mechanical devices. That is why there is a legal framework that regulates the fight against rats. The use of chemical agents is standardised throughout Europe in the biocide regulation 528/2012 and is governed by the laws of the Member States (amongst others Chemicals Act, Water Resources Act, Ordinance on Hazardous Substances, Occupational Health and Safety Act & Infection Protection Act). The control of mechanical methods is provided, amongst other things, by the Animal Welfare Act and the Infection Protection Act.

According to a survey carried out by the Institute for Applied Construction Technology, up to 1,000 tonnes of rat poison is used annually in Germany alone. Rat poisons are PBT/vPBT (persistent, bioaccumulating & toxic/very persistent, bioaccumulating & toxic) substances. PBT/vPBT substances were identified, in a study by the German Federal Environment Agency for water quality, in large quantities in almost all aquatic and terrestrial areas. The findings from this study prompted the Federal Environment Agency to regulate the use of poison in the form of adoption of Risk Mitigation Measures (RMM).

For rat control in the wastewater network this means: The baits must be used in a way that they do not come in contact with water and are not washed away. Poison bait hanging on a wire in the manhole chamber is therefore not permitted. This is because the wastewater network, which as a water-carrying system has humid air conditions, exposed to heavy rain events and backwater (e.g. due to drainage) as well as the entry of surface water via the manhole cover. It is therefore impossible to protect a suspended bait from contact with (waste) water.

ball-b provides users with its ToxProtect® 1402, 1602 and 1701 models exclusively. The systems available meet the legal requirements. All ToxProtect® come equipped with a sensor and transmit information on the rat infestation to our WebService. Based on this information it is possible to control the rats both in the wastewater ways and above ground. We provide the user with an effective, economical and legally secure concept for rat control.



The previous handling of rat poison not only violates applicable law but the conventional methods also have many disadvantages:

- Residues are found throughout the food chain
- Biocidal pollution in the wastewater and the environment
- Poisoning of non-target animals (domestic & wild)
- High personnel/operating costs
- Damage to the image of towns and communities if the environment and non-target animals are poisoned

We offer a reliable solution for a successful and legally compliant rat control – the bait protection box.

ToxProtect®



Efficient High effectiveness – relatively little effort required to achieve the optimum result.



Connected Rat hotspots easily identified remotely via the WebService.



Innovative Our ToxProtect® is designed in such a way that it is quick and uncomplicated to convert/adapt to onsite requirements.

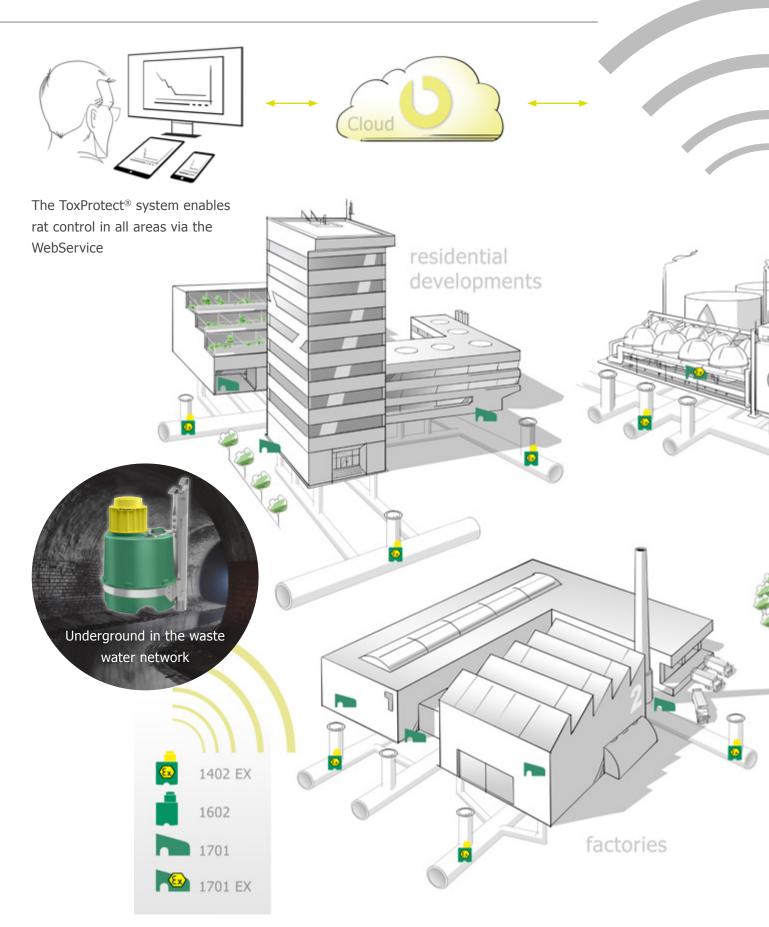


Patented Backwater float prevents the bait from coming into contact with water and therefore ensures effective flood protection.



LOCATION SUITABILITY

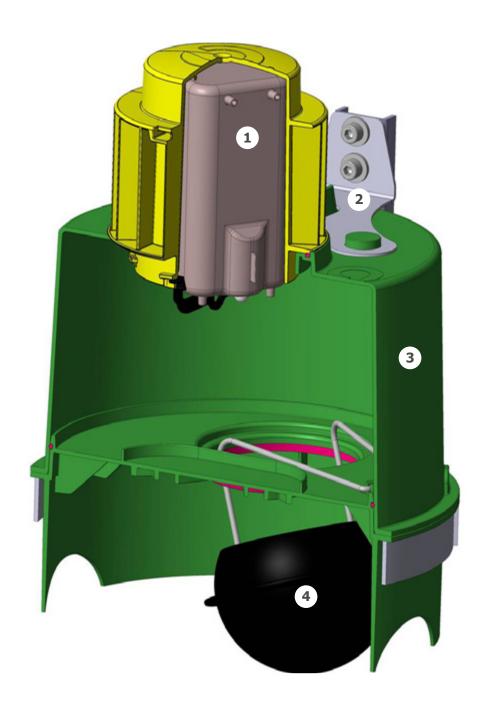
Efficient solutions for individual areas of application





PATENT

Functionality



The ToxProtect® is protected against the ingress of water by the backwater float. If the water level rises underground or at another location such as near a river, the backwater float of the ToxProtect® closes and seals it. When the water level returns to normal it then opens the entrance to the box so that the

bait can be reached again by the rats. Thanks to the intelligent protection technology, the patented ToxProtect® is the only solution that meets legal requirements for the use of poisonous baits in rat control.



Patent number

DE 10 2014 102 034 B4, EP 3 107 383 B1

1 BatteryBox

Monitors the success of the rat control through radio transmission without the need to open the manhole. Easy attachment of the bait (ToxClip).

2 Bracket

(Made of stainless steel V4A)
Easy and quick assembly/disassembly.

3 Box

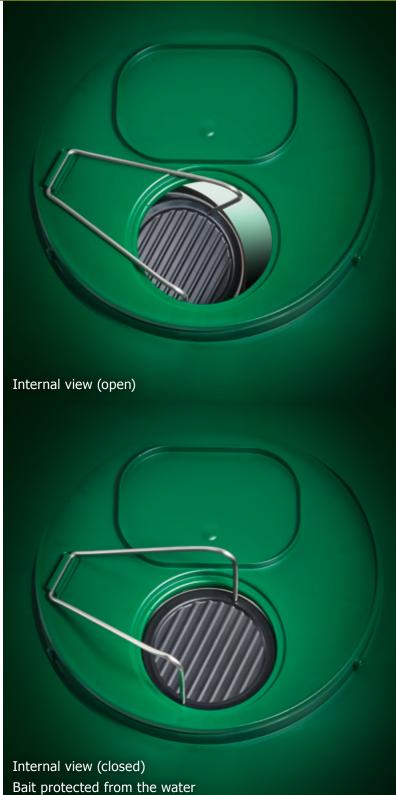
Plastic housing provides a safe place for the rats to feed.

4 Backflow float

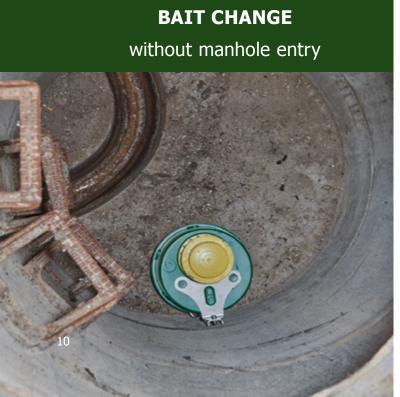
In the case of flooding the patented locking system prevents the water making contact with the bait.

For use in the wastewater network (ToxProtect® 1402) and for use above ground (ToxProtect® 1602).













ToxProtect® 1402 Ex-MF







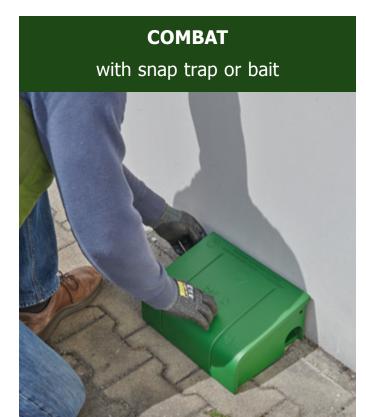
ToxProtect® 1602

LOCKING SYSTEM protects against unauthorised access





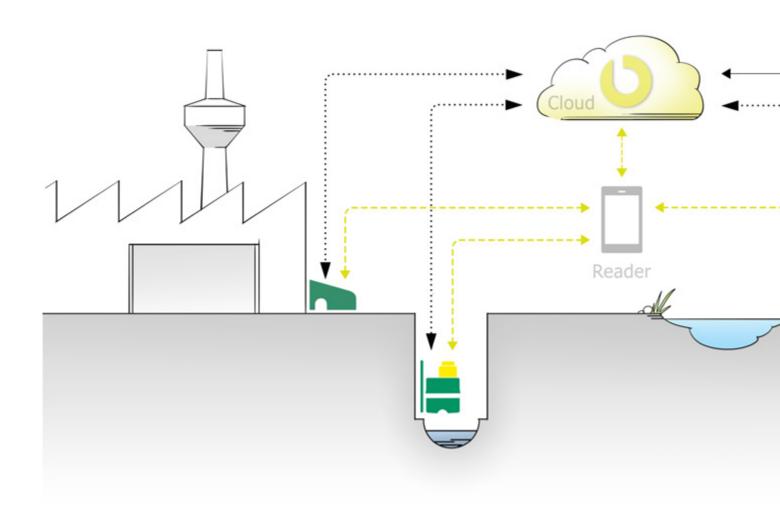
ToxProtect® 1701





RADIO TECHNOLOGY

Networked communication



TECHNOLOGY	ULE	NB-IoT	LoRaWAN
Application	Infestation detection made at the manhole with the Reader	Infestation detection is automatically sent to the cloud every 8 hours	Infestation detection is automatically sent to the cloud every 8 hours
System requirements	Independent of mobile networks	Dependent on Telekom network	Dependent on LoRaWAN network
Combinable	with NB-IoT & LoRaWAN	with ULE & LoRaWAN	with ULE & NB-IoT
Battery life	ca. 6–12 months	ca. 12–24 months	ca. 12–24 months
Readout times	after 10 days	every 8 hours	every 8 hours
Radio expansion	no radio expansion necessary	dependent on the network operator	dependent on the network operator



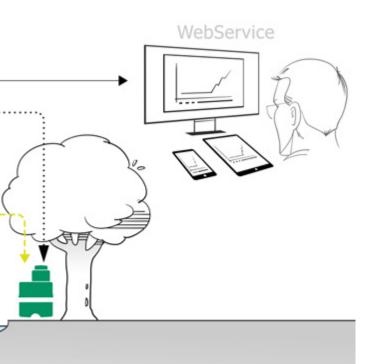
All ToxProtect® models can optionally be equipped with ULE, NB-IoT or LoRaWAN technology. A mix of all technologies is also possible.

ULE technology can be combined with the ToxProtect® in almost all installation locations, independent of an existing mobile network.

With **ULE technology** the BatteryBox communicates directly with the Reader to facilitate the exchange of data. The data exchange is always encrypted. In addition the authentication process ensures that only the Reader can exchange data with its paired BatteryBoxes.

With **NB-IoT** & **LoRaWAN** technology, we utilise the latest mobile radio standards. There is no requirement to visit the manholes, as the data is transmitted directly to the cloud database. The data relating to the number of visits from the rats is sent to the WebService on a daily basis. Installation/removal and bait management are still carried out via the Reader and synchronised with the WebService.

If **NB-IoT** or **LoRaWAN** is not yet available at the desired locations, we recommend a mixed approach with **ULE**, **NB-IoT** or **LoRaWAN**.





without technology
No infestation detection possible
_
with ULE, NB-IoT & LoRaWAN
-
_
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WEBSERVICE

The ball-b Cloud

The WebService is a cloud-based application which provides a cartographic overview of all ToxProtect® at a glance, so that the rat infestation can be reacted to quickly. The Cloud from ball-b enables the world's first networked rat control. In addition to the cartographic overview, the WebService also provides a quick overview of each individual measure. This creates a rat control which is effective, economical and ecological.

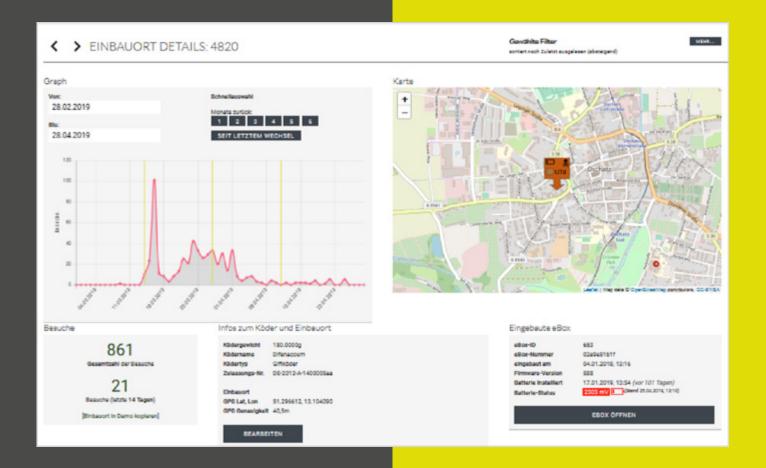
The data can also be forwarded to common Geographic Information Systems (GIS) via WebAPI.



Demo version demo.ball-b.de

Username: Demo@ball-b.de

Password: Demo







M 0	Einbauort 0	eBox Nr.	Einbausituation	Tech. 0	Befestigung 0	Gesamtzahl Besuche	Anzahl Besuche (letzte 14 Tage)	Besuche (letzte 14 Tage)	Zuletzt ausgelesen	Nächstmögl. () Auslesung	Ködemame ()	Ködertyp 0	Erstellt
3464	95160	02e9e519b1 (singotest am: 19.12.2018, 10.19)	Schacht	ULE	variabel	2	0	g Zeit	25.04.2019, 12:30	in 7 Tagen (um 05.05.2019, 12.00)	Testblock	Lockköder	19.12.2018 10:19
1137	4740	02e9e51aba (vingstaut am: 04.01.2018, 11.22)	Schacht	ULE	permanent	271	0	g Zet	25.04.2019, 12:26	in 7 Tagen (am 05.05.2010, 12.24)	Testblock	Lockköder	04.01.2018 11:22
1139	4940	02e9e51b19 (singsteut am: 04.01.2018, 18.02)	Schacht	ULE	permanent	940	3	and the second	25.04.2019, 12.21	in 7 Tagen (am 05.05.2019, 12:21)	Kanal-Diskus	Giftköder	04.01.2018 13:02
1140	4820	02e9e51b1f (singstaut am: 04.01.2018, 13.14)	Schacht	ULE	permanent	861	21	2 ~~ ^^ ^	25.04.2019, 12:10	in 7 Tagen (µm 06.06.2010, 1210)	Difenacoum	Giftköder	04.01.2018 13:16
391	5540	02e9e51b1b (singsteut am: 04.01.2018, 09:98)	Schacht	ULE	permanent	174	2	and the state of t	25.04.2019, 12:01	in 7 Tagen (am 05.05.2019, 12.01)	Difenacoum	Giftköder	16.03.2017, 15:16
1280	7890	02e9e51a67 (singsteut am: 15.00.2018, 10:50)	Schacht	ULE	permanent	238	1	20t	25.04.2019, 11:53	in 7 Tagen (µm 05.05.2019, 11.53)	Testblock	Lockköder	15.02.2018 10:58
1282	115100	02e9e519f8 (singetest am: 19.12.2018, 09:30)	Schacht	ULE	permanent	290	0	g Zet	25.04.2019, 11:32	in 7 Tagen (am 05.05.2019, 11.02)	Difenacoum	Giftköder	15.02.2018 13:17
1283	119060	02e9e519e2 (ungetest am: 18.02.2018, 13.34)	Schacht	ULE	permanent	400	0	2 2et	25.04.2019, 11:27	in 7 Tagen (µm 05.05.2019, 11:27)	Difenacoum	Giftköder	15.02.2018 13:34
2999	7980	02e9e51a66 (singstest am: 27.08.2018, 14.17)	Schacht	ULE	permanent	181	4	20t	25.04.2019, 11:17	in 7 Tagen (um 05.05.2019, 11.57)	Difenacoum	Giftköder	27.09.2018 14:17
2402	739	02e9e519ee (singstaut am: 21.0e.2018, 11.07)	Schacht	ULE	permanent	134	4	20 Viet	25.04.2019, 10:55	in 7 Tagen (am 05.05.2019, 10.55)	Difenacoum	Giftköder	21.06.2018 11:07
1285	148120	02e9e51a4d (singstest am: 18.00.2018, 14.13)	Schacht	ULE	permanent	805	28	and the second	25.04.2019, 10:38	in 7 Tagen (am 05.05.2019, 10.38)	Difenacoum	Giftköder	15.02.2018 14:13
2408	148070	02e9e51a19 (singstaut am: 21.06.2018, 11:28)	Schacht	ULE	permanent	345	0	Part Zeit	25.04.2019, 10:27	in 7 Tagen (am 05.05.2019, 10:27)	Difenacoum	Giftköder	21.06.2018, 11:25



Advantages



A ToxProtect® covers an area of between 250 and 500 metres



ca. 90 % less poison used



Reduction in operating costs due to savings in working hours



Thanks to the patented closure system the bait does not come in contact with any water



Monitoring of rat visits through radio technology



Legally compliant



Easy accessibility for rats (good acceptance)

Use

When used in the wastewater network, the ToxProtect® bait protection box protects the bait from contact with the water. It sends data about the visits as well as the documentation of bait to the Web-Service. If the water level rises, the backwater float closes the ToxProtect® so the bait stays dry.

The bait can be easily exchanged from above without entry into the manhole chamber using the Telescopestick. The rats can then feed on the attached bait inside the box.

PermanentFix | VarioFix | MultiFix

Variants





PermanentFix Part No.:

14100 without tech. 14102 with ULE 14104 with NB-IoT 14230 with LoRaWAN



VarioFix Part No.:

14231 without tech. 14232 with ULE 14233 with NB-IoT 14234 with LoRaWAN

MultiFix Part No.:

14211 without tech. 14206 with ULE 14209 with NB-IoT 14210 with LoRaWAN

VARIANT	PermanentFix	VarioFix	MultiFix
Manhole chamber	For standard manholes & unique structures	Only for standard manholes DN 800, 1000, 1200, 1500	For standard manholes & unique structures
Assembly	By securing, through drilling, a fixed bracket onto the chamber wall	From above with 1 person, ca. 1 minute	Drilling into the chamber wall and locking into place from above
Relocation	Separate rails allow for easy relocation	It is just as quick to remove as it is to relocate/reinstall	Separate rails enable easy relocation. The ToxProtect® is removed and reinstalled from above
Bait loading	From above without entry into the chamber	From above without entry into the chamber	From above without entry into the chamber



Advantages



Used near bodies of water



Easy to change bait



Assembled using mounting rails



Separate mounting rails allow for easy relocation



Protected against backwater flow thanks to the patented closure system



Secure locking system

Use

The ToxProtect® 1602 is a bait protection box that protects the bait from contact with water and provides data on the rat control carried out. The ToxProtect® 1602 is used near bodies of water and in areas at risk of flooding and the rats can feed on the bait placed inside. The visits from the rats and the documentation of the steps taken to combat them are recorded by the ToxProtect® and made available in the WebService. If the water rises the backwater float will open and close in accordance with the water level so the bait stays dry. This also allows the bait to be protected from unauthorised access.

Part No.:

14106 without tech. 14107 with ULE 14108 with NB-IoT 14229 with LoRaWAN



Advantages



Control carried out with bait and electronic monitoring



Suitable for both indoors and outdoors



Secure locking system



Suitable for Ex-protection Zone 1



Wall adapter = QuickFix assembly/ disassembly of the ToxProtect®

Use

The ToxProtect® 1701 can be used both indoors and outdoors. It can be equipped with both a snap trap or poison bait. The visits from the rats are recorded by the ToxProtect® and are made available in the WebService.

When an animal triggers the snap trap (when this feature is equipped), a message is sent to a mobile phone. The bait is also protected from unauthorised access thanks to a secure locking system.

Part No.:

17001 without tech. 17002 with ULE 17003 with NB-IoT 17004 with LoRaWAN

Ex-PROTECTION

Zone 1



The biological degradation of organic substances by microorganisms already begins underground in the wastewater network, which means 'sewer gases' such as methane, carbon dioxide and hydrogen sulfide can form.

In wastewater systems, it must be expected that a dangerous, explosive atmosphere will occasionally occur so the **Ex-protection Zone 1** is formed.

We have certified our electronic components within our BatteryBox according to ATEX & IECEX. This certification offers users the greatest possible protection and provides job security. This makes the ToxProtect® models the only systems that are Ex-protection Zone 1 approved.





Insert battery pack





Slide the BatteryBox into the housing



Accessories

Clever additions

1 Reader

The Reader is a data acquisition and read out device. The Reader communicates with the BatteryBox to document the installation location, bait management, infestation detection and battery status.

With ULE, the reader is used to read the stored data from the BatteryBox and to transfer it to the WebService via the Cloud.

2 MoveStick

The MoveStick is used for quick and safe use when changing the bait or installing/removing the ToxProtect® 1402 with the VarioFix or MultiFIx.

The MoveStick and its accessories have been developed for robust use in the wastewater systems.

3 Key

The secure locking system of the ToxProtect® 1602 and 1701 protects the bait from any unauthorised persons.

4 QuickFix = Wall adapter

For quick and safe attachment/removal of the ToxProtect® 1701 on buildings/walls.

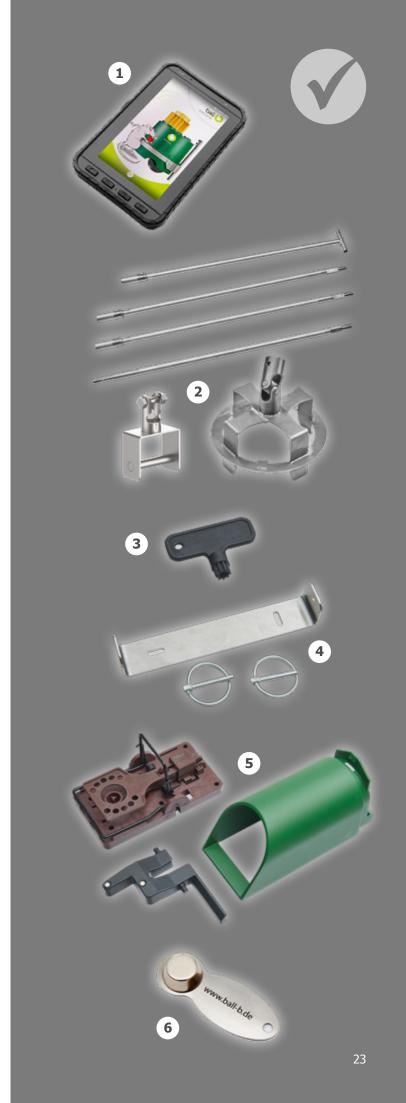
5 TrapSet

The ToxProtect[®] 1701 can be equipped and operated with a snap trap.

When an animal triggers the snap trap, a message is sent to a mobile phone (only possible with NB-IoT or LoRaWAN technology).

6 Magnet

For registering and managing the BatteryBox with ULE technology.



INDIVIDUAL SOLUTIONS

Overview of product variants | Accessories for basic equipment

For use in the wastewater networks – PermanentFix		
Part No.	Bait protection boxes	
14102	ToxProtect® 1402UEx-PF with ULE technology	
14104	ToxProtect® 1402NEx-PF with NB-IoT technology	
14230	ToxProtect® 1402LEx-PF with LoRaWAN technology	
14100	ToxProtect® 1402-PF without technology	
Part No.	Necessary accessories*	
14126	BatteryBox-Grip G1	
14133	MoveStick	
14192	eBox-Grip G4	
14192 15024	eBox-Grip G4 Reader 1504 incl. wrist strap	
	Reader 1504	

For use in the wastewater networks – VarioFix & MultiFix			
Part No.	Bait protection boxes		
14206	ToxProtect® 1402UEx-VF with ULE technology		
14209	ToxProtect® 1402NEx-VF with NB-IoT technology		
14210	ToxProtect® 1402LEx-VF with LoRaWAN technology		
14211	ToxProtect® 1402-VF without technology (for manholes from Ø 0,80-1,50 m)		
14232	ToxProtect® 1402UEx-MF with ULE technology		
14233	ToxProtect® 1402NEx-MF with NB-IoT technology (incl. 10 years flat rate)		
14234	ToxProtect® 1402LEx-MF with LoRaWAN technogy		
14231	ToxProtect® 1402-MF without technology		
Part No.	Necessary accessories*		
14126	BatteryBox-Grip G1		
14133	MoveStick		
14192	eBox-Grip G4		
14194	Vario-Grip G2		
15024	Reader 1504 incl. wrist strap		
14124	Magnet only for ULE technology		
15038	WebService-EntryCity mth.		

For use above ground			
Part No.	Bait protection boxes		
14106	ToxProtect® 1602 without technology		
14107	ToxProtect® 1602U with ULE technology		
14108	ToxProtect® 1602N with NB-IoT technology		
14229	ToxProtect® 1602L with LoRaWAN technology		
Part No.	Necessary accessories*		
14126	BatteryBox-Grip G1		
15024	Reader 1504 incl. wrist strap		
14124	Magnet only for ULE technology		
15038	WebService-EntryCity mth.		

For use above ground			
Part No.	Bait protection boxes		
17001	ToxProtect® 1701 without technology (incl. 1 key per box)		
17002	ToxProtect® 1701U with ULE technology		
17005	ToxProtect® 1701UEx with ULE technology + Ex-protection		
17003	ToxProtect® 1701N with NB-IoT technology		
17006	ToxProtect® 1701NEx with NB-IoT technology + Ex-protection		
17004	ToxProtect® 1701L with LoRaWAN technology		
17007	ToxProtect® 1701LEx with LoRaWAN tech. + Ex-protection (incl. 1 key per box)		
Part No.	Necessary accessories*		
15024	Reader 1504 incl. wrist strap		
14124	Magnet only for ULE technology		
15038	WebService-EntryCity mth.		
17027	QuickFix wall mounting		
17026	TrapSet only for NB-IoT- & LoRaWAN technology		

^{*} Required accessories only necessary for initial purchase!

References

Customer testimonials

"In ball-b we have found a partner with whom we can jointly offer modern rat control systems, the likes of which are not found anywhere else."

Alexander Herrling, Rockstroh GmbH

"We have been working with the ToxProtect 1402 in the wastewater systems since 2017 and have saved more than 850 kg of rodenticides every year. This corresponds to about 96% fewer active substances than before 2017. Since 6 months we have also been working with the ToxProtect 1701 and thus receive the information electronically where the rats are located (in the wastewater network or above ground). Both systems show the rat infestation in the WebService and therefore support effective, economic and ecological rat control."

Volker Plump,

Eigenbetrieb Stadt Lörrach

"With the VarioFix system, the bait protection box can be easily installed and quickly re-positioned as required."

Ludger Wördemann,

Stadt Rheda-Wiedenbrück

"With one click I can get an overview of all bait locations and the current rat population. This is unique."

Torsten Fick,

EVB Entsorgungs- u. Verkehrsbetriebe Wismar

"Due to the ease of assembly, evaluation and maintenance, we have been able to reduce the amount of work and significantly reduce the use of toxic substances."

Peter Jahn,

Abwasserverband "Untere Döllnitz"

"Since using ToxProtect, we have a precise picture of the rat population in our wastewater network and can combat the hotspots in a targeted manner."

Martin Prühl, **Stadt Dettelbach**,



"With the help of the bait protection boxes, we have significantly reduced the use of poisons and at the same time gained in effectiveness."

Marco Steinfeld,

Stadt Bad Kissingen

© AdobeStock: Looker_Studio

"The time saved is enormous. Thanks to the networked ToxProtect, I no longer have to drive around our 40 sites for monitoring. That used to be a huge effort, but now I can do it comfortably on my computer in just a few minutes."

Markus Vollmer,

ED Netze GmbH



"A super system for pest control from Nuremberg, which supports us in our daily work in the best possible way – from professionals for professionals".

Thomas Berger,

Abwasserverband Oberer Rheingau

"The solution from Nuremberg has proven itself in daily use and we are enthusiastic about the overall solution consisting of hardware and software."

Björn Griener, **Dienstleistung & Handel Wehr**



"Rat poisons are a great danger for humans and the environment. With the ball-b bait protection boxes we make an important contribution to the sustainable handling of these poisons".

Kai Finken,

Osterholzer Stadtwerke GmbH & Co. KG

"ball-b is an innovative company that maintains a cooperative relationship with its customers and always has its' finger on the pulse.

ToxProtect is an outstanding product that has reduced the use of toxins at the Fulda Wastewater Association by almost 90% and the use of personnel by approx. 60%. The AWV Fulda is eager to see what innovative, new solutions and products ball-b will surprise us with in the future and we will accompany all developments positively."

Peter Geffe,

Abwasserverband Fulda

"Thanks to the unique sensor technology, we can now determine exactly where, and how large, the actual rat population is."

Roland Gäbler,

Stadtwerke Görlitz

