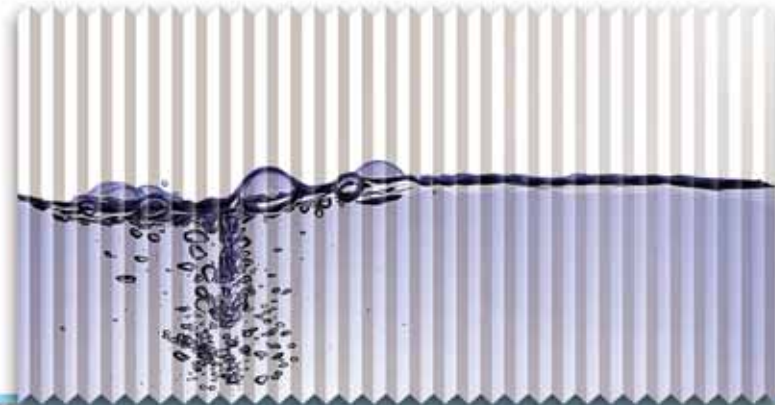




Components \* Solutions \* Systems



## SmartBox

Catalogue 2020

Catalogue Tank Management

Made in GERMANY

## The SmartBox product range ...

... offers an individual tank data management system for tanks containing liquid media. Whether it is in the household, during the monitoring of filling stations or with industrial applications, with the appropriate SmartBox, the operator is able to determine the filling level and receive notifications of defined events.

Level monitoring Pages 2 - 9	Level monitoring and remote transmission Pages 10 - 13	Network-compatible level monitoring Pages 14 - 17	Components, accessories and add-ons Pages 18 - 23	Filling level and content measurement Pages 24 - 25
<b>SmartBox 1</b> The remote level gauge 	<b>SmartBox 4</b> The remote level gauge and data transmitter 	<b>SmartBox 4 LAN</b> The remote level gauge with network connection 	<b>Level probe</b> Standard 	<b>SmartBox MINI</b> The electronic remote level gauge 
<b>SmartBox 2</b> The remote level gauge with switching functions 	<b>SmartBox 4 PRO</b> The remote level gauge and data transmitter for up to four tanks 	<b>SmartBox 4 LAN PRO</b> The remote level gauge with network connection for up to four tanks 	<b>Level probe</b> for storage tanks 	<b>Event monitoring and remote transmission</b> Pages 26 - 27 
<b>SmartBox 3</b> The remote level gauge and minimum or maximum level detector 			<b>Level probe</b> Ex version 	<b>SmartBox 5</b> The data transmitter and event notifier 
<b>SmartBox 4 BASIC PRO</b> The remote level gauge for up to four tanks 			<b>Mechanical level gauge</b> 	
These display units are combinable with all probes shown				

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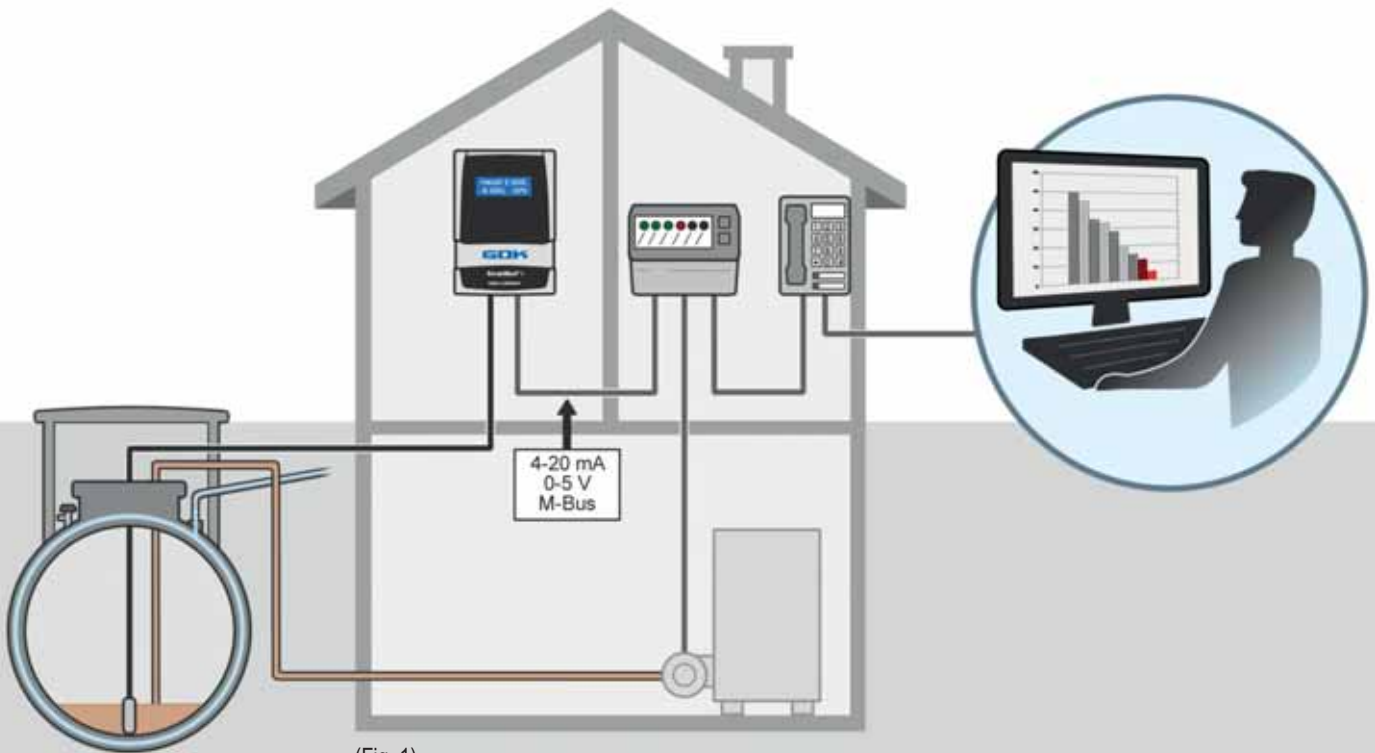
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All descriptions and sizes provided are non-binding. We reserve the right to make design changes.  
The images of products as well as the drawings of applications and products are intended as examples only.  
We assume no liability for printing errors or mistakes!

**Publication of the 2020 catalogue renders previous documents invalid!**

VAT ID: DE 133017271 | WEEE Reg. No.: DE 78472800

## Level monitoring SmartBox 1



(Fig. 1)

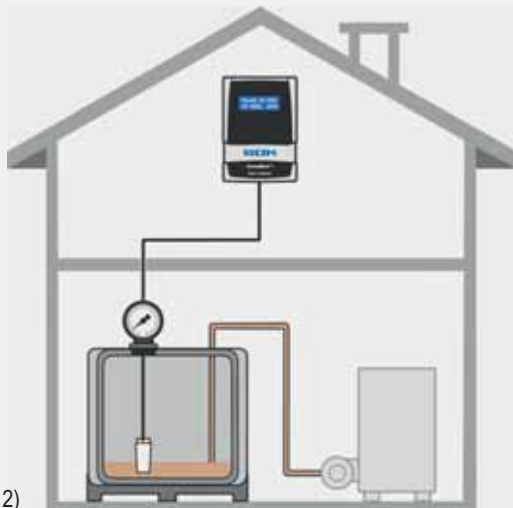
### SmartBox 1 – The remote level gauge

SmartBox 1 is an electronic remote level gauge for non-pressurised tanks and fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 1 does not include a probe, as the appropriate probe type depends particularly on the operating medium and tank height.

### Free capacity and filling

With the “free capacity” menu option, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!



(Fig. 2)

### Application examples

#### Figure 1:

The SmartBox 1 measures the content by means of a level probe and displays it on site. The tank data are also connected to existing event report or building control systems.

#### Figure 2:

The mechanical level gauge type FSA-W determines the filling height according to the float principle in centimetres, which it then displays. Using an electronic interface, the measured value is relayed via a connection cable to the SmartBox 1 digital display unit, where it is converted into the set output value and shown on the display.

## Level monitoring SmartBox 1



### SmartBox 1

Part no.

is an electronic remote level gauge for a non-pressurised tank with a liquid operating medium

**Function:**

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

**Advantages and equipment**

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

**Technical data**

- supply voltage: 230 V AC 50 Hz
- protection type: IP54
- interface: optionally upgradeable for 4-20 mA, 0-5 V, M-Bus, H-protocol, for example

**Note**

- For more components, refer to accessories and add-ons.

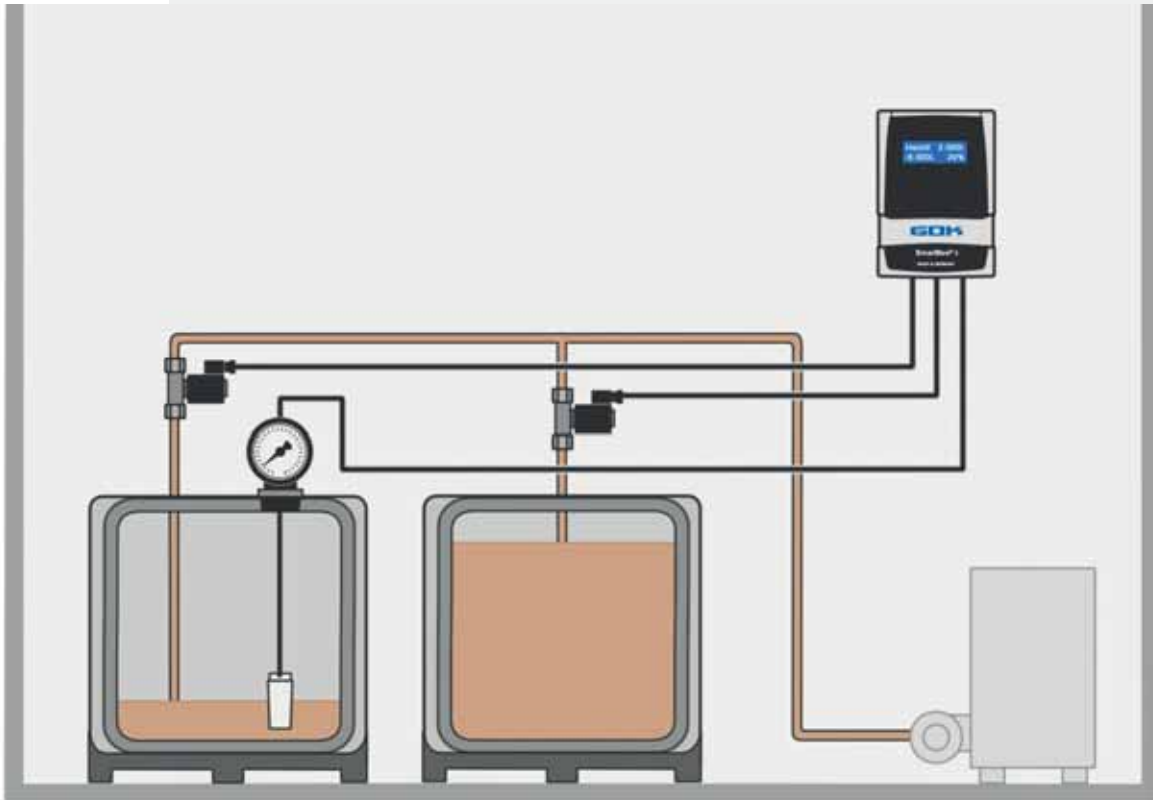
**SmartBox 1**

display unit for indoors or weather-protected outdoor areas, IP54 without probe

28 161 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Level monitoring SmartBox 2



### SmartBox 2 – The remote level gauge with switching functions

SmartBox 2 is an electronic remote level gauge with two potential-free relay outputs and suitable for non-pressurised tanks. The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy.

The scope of delivery of the SmartBox 2 does not include a probe, as the appropriate probe type depends particularly on the operating medium and tank height.

#### Free capacity and filling

With the “free capacity” menu option, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

#### Application example:

The mechanical level gauge type FSA-W determines the filling height according to the float principle in centimetres, which it then displays. Using an electronic interface, the measured value is relayed via a connection cable to the SmartBox 2 digital display unit, where it is converted into the set output value and shown on the display. A reserve tank is controlled by a potential-free relay output.

## Level monitoring SmartBox 2



### SmartBox 2

Part no.

is an electronic remote level gauge for a non-pressurised tank with a liquid operating medium and additional control functions by means of 2 relay outputs

**Function:**

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

**Advantages and equipment**

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

**Technical data**

- supply voltage: 230 V AC 50 Hz
- protection type: IP54
- interface: optionally upgradeable for 4-20 mA, 0-5 V, M-Bus, H-protocol, for example
- 2 relay with normally open and normally closed contact  
maximum 250 V AC - maximum 3.5 A

**Note**

- For more components, refer to accessories and add-ons.

**SmartBox 2**

display unit for indoors or weather-protected outdoor areas, IP54 without probe

28 261 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Level monitoring SmartBox 3



### **SmartBox 3 – The remote level gauge and minimum or maximum level detector**

SmartBox 3 is an electronic remote level gauge with an acoustic and visual alarm system and suitable for non-pressurised tanks. The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy.

The scope of delivery of the SmartBox 3 does not include a probe, as the appropriate probe type depends particularly on the operating medium and tank height.

#### **Free capacity and filling**

With the “free capacity” menu option, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

#### **Application example:**

The SmartBox 3 measures the content by means of a level probe and displays it on site. If a defined filling level is exceeded or fallen short of, the device emits an acoustic and visual alarm.



## Level monitoring SmartBox 3



### SmartBox 3

Part no.

is an electronic remote level gauge with an acoustic and visual alarm system for the signalling of a minimum or maximum filling level, including an additional control function with a relay output for a non-pressurised tank with a liquid operating medium

A freely selectable minimum or maximum filling level of between 1 and 99% can be defined.

#### Function:

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

#### Advantages and equipment

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish
- integrated visual and acoustic alarm system

#### Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP30
- interface: optionally upgradeable for 4-20 mA, 0-5 V, M-Bus, H-protocol, for example
- 1 relay with normally open and normally closed contact  
maximum 250 V AC - maximum 3.5 A

#### Note

- For more components, refer to accessories and add-ons.

#### SmartBox 3

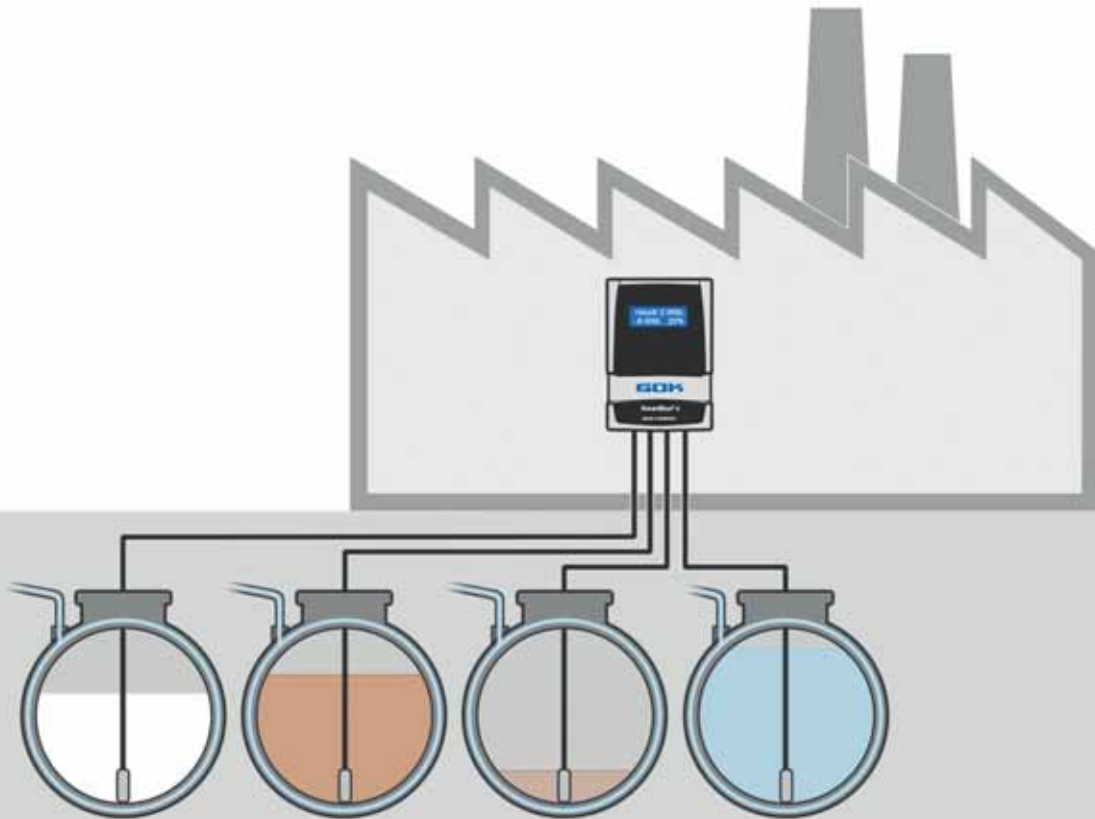
Display unit for dry and protected areas, IP30

without probe

28 321 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Level monitoring SmartBox 4 BASIC PRO



### SmartBox 4 BASIC PRO – The remote level gauge for up to four tanks

SmartBox 4 BASIC PRO is an electronic remote level gauge for monitoring up to four non-pressurised tanks using one display unit. The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 4 BASIC PRO does not include probes, as the appropriate probe type depends particularly on the operating medium and tank height.

#### Free capacity and filling

With the “free capacity” menu option, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

#### Application example:

Four level probes are connected to the SmartBox 4 BASIC PRO which monitor the tanks with four different mediums. The display of the SmartBox shows the respective filling levels of all four tanks.

## Level monitoring SmartBox 4 BASIC PRO



### SmartBox 4 BASIC PRO

Part no.

is an electronic remote level gauge for up to four non-pressurised tanks with a liquid operating medium

A variety of different requirements as regards the tanks can also be taken into account. By selecting the appropriate probes, different types of operating media, from fuel oil to petrol, can be simultaneously monitored, taking the tank height into account.

**Function:**

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

**Required for operation:**

Up to four probes according to the use of the media and the number of tanks to be monitored (refer to components, accessories and add-ons).

**Advantages and equipment**

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

**Technical data**

- supply voltage: 230 V AC 50 Hz
- protection type: IP54

**Note**

- For more components, refer to accessories and add-ons.

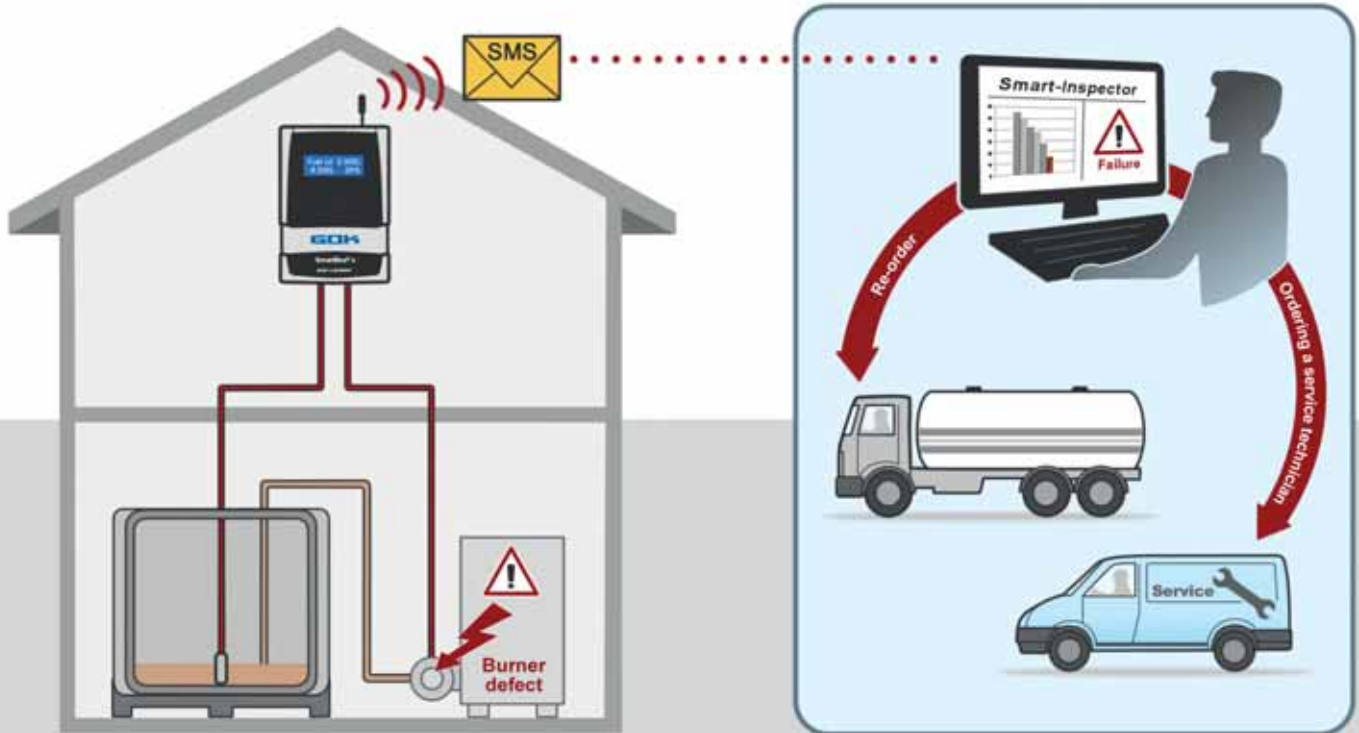
**SmartBox 4 BASIC PRO**

display unit for indoors or weather-protected outdoor areas, IP54 without probe

28 681 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Level monitoring and remote transmission



### SmartBox 4 – The remote level gauge and data transmitter

SmartBox 4 is an electronic remote level gauge to monitor a non-pressurised tank on site and remotely. The SmartBox 4 sends the tank data by text message to either a mobile phone or the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 4 does not include a probe, as the appropriate probe type depends particularly on the operating medium and tank height.

### Free capacity and filling

With the “free capacity” menu option, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

### Application example:

The SmartBox 4 measures the content by means of a level probe and displays it on site. In addition to the filling level of a fuel oil consumer installation, the operation of the oil burner is monitored for malfunctions.

The SmartBox sends the filling level data by text message to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). There, the operator is able to monitor the filling level, and in the event of a burner malfunction, the service technician is immediately notified. The burner/fuel order can be triggered either automatically or by the operator.

## Level monitoring and remote transmission



### SmartBox 4

Part no.

is an electronic remote level gauge for a non-pressurised tank with a liquid operating medium including data transmitter

The integrated GSM modem transmits tank information, such as filling levels and critical conditions (minimum filling level, system malfunction, e.g. burner malfunction, leakage notification, etc.), via all known mobile networks worldwide.

#### Function:

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

#### The right solution for:

- the monitoring of tank and consumer units
- the remote transmission of tank contents and data

#### The data is communicated:

- by text message to mobile phones or by email, depending on the provider
- to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com) for the full monitoring of the system. If configured appropriately, this can carry out measures independently, such as ordering fuel or deploying technicians.

#### Required for operation:

It is possible to choose between a prepaid card and a SIM card contract. With a prepaid card, you must always check that sufficient credit is available. The SIM card is not included in the scope of delivery!

#### Advantages and equipment

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

#### Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP54
- interface: optionally upgradeable for 4-20 mA, 0-5 V, M-Bus, H-protocol, for example
- event notification input, e.g. for reporting a system malfunction
- 1 relay with normally open and normally closed contact  
maximum 250 V AC - maximum 3.5 A

#### Note

- For more components, refer to accessories and add-ons.

#### SmartBox 4

display unit for indoors or weather-protected outdoor areas, IP54 without probe

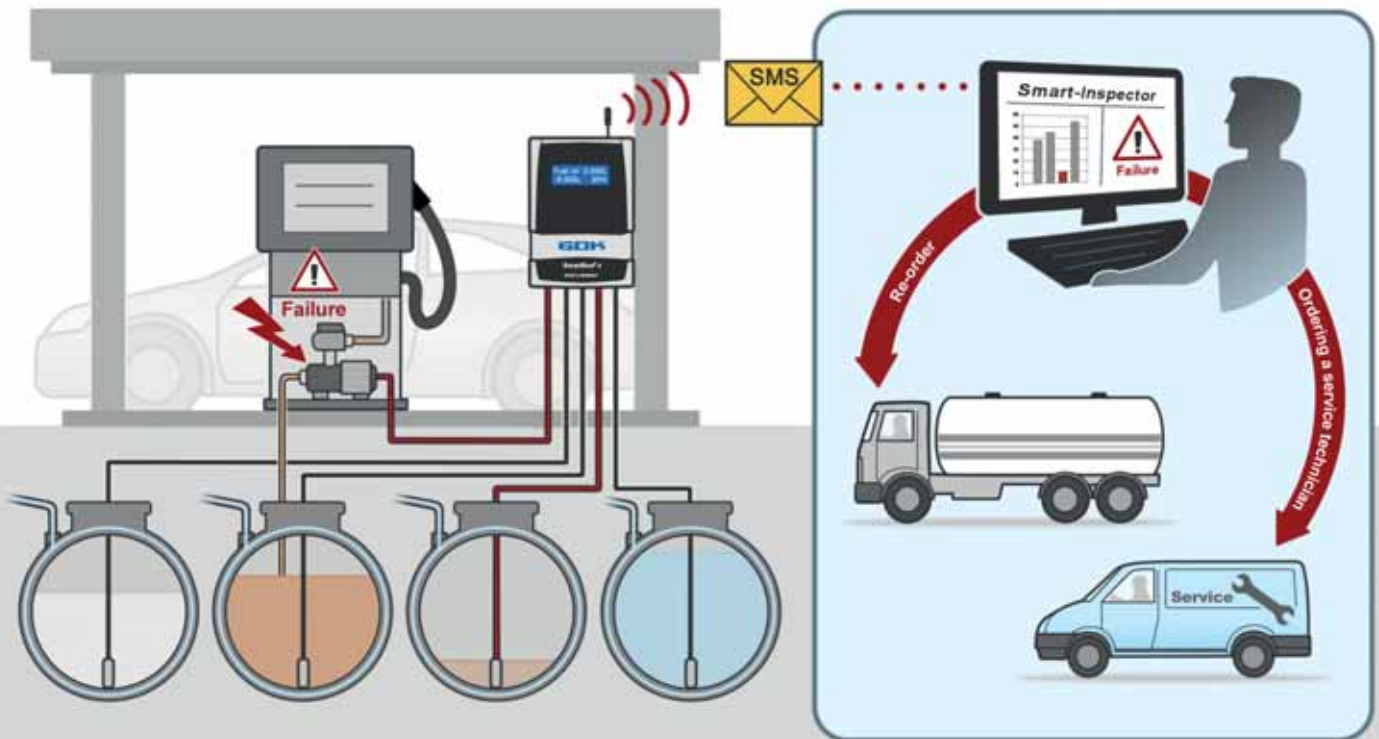
28 461 00

#### Internet database Smart Inspector ([www.smart-inspector.com](http://www.smart-inspector.com)):

The invoicing of user fees for the system hosting, administration, safeguarding and processing of tank data is completed by a third-party provider.

A registration form is enclosed with the appropriate products. Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Level monitoring and remote transmission



### SmartBox 4 PRO – The remote level gauge and data transmitter for up to four tanks

SmartBox 4 PRO is an electronic remote level gauge to monitor up to four non-pressurised tanks on site and remotely. The SmartBox 4 PRO sends the tank data by text message to either a mobile phone or the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 4 PRO does not include probes, as the appropriate probe type depends particularly on the operating medium and tank height.

#### Free capacity and filling

Using a free capacity display, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

#### Application example:

Four level probes are connected to the SmartBox 4 PRO which monitor the tanks with four different mediums. The display of the SmartBox shows the respective filling levels of all four tanks. In addition to the filling level, the system also monitors the pump on the dispenser. The SmartBox sends the filling level data by text message to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). There, the operator is able to monitor the filling level, and in the event of a pump malfunction, the service technician is immediately notified. The burner/fuel order can be triggered either automatically or by the operator.

## Level monitoring and remote transmission



### SmartBox 4 PRO

Part no.

is an electronic remote level gauge for up to four non-pressurised tanks with a liquid operating medium including data transmitter

The integrated GSM modem transmits tank information, such as filling levels and critical conditions (minimum filling level, system malfunction, e.g. burner malfunction, leakage notification, etc.), via all known mobile networks worldwide.

#### Function:

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

#### The right solution for:

- monitoring of up to four tank and consumer units
- the remote transmission of tank contents and data

#### The data is communicated:

- by text message to mobile phones or by email, depending on the provider
- to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com) for the full monitoring of the system. If configured appropriately, this can carry out measures independently, such as ordering fuel or deploying technicians.

#### Required for operation:

Up to four probes according to the use of the media and the number of tanks to be monitored (refer to components, accessories and add-ons). It is possible to choose between a prepaid card and a SIM card contract. With a prepaid card, you must always check that sufficient credit is available. The SIM card is not included in the scope of delivery!

#### Advantages and equipment

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

#### Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP54
- event notification input, e.g. for reporting a system malfunction

#### Note

- For more components, refer to accessories and add-ons.

#### SmartBox 4 PRO

display unit for indoors or weather-protected outdoor areas, IP54 without probe

28 661 00

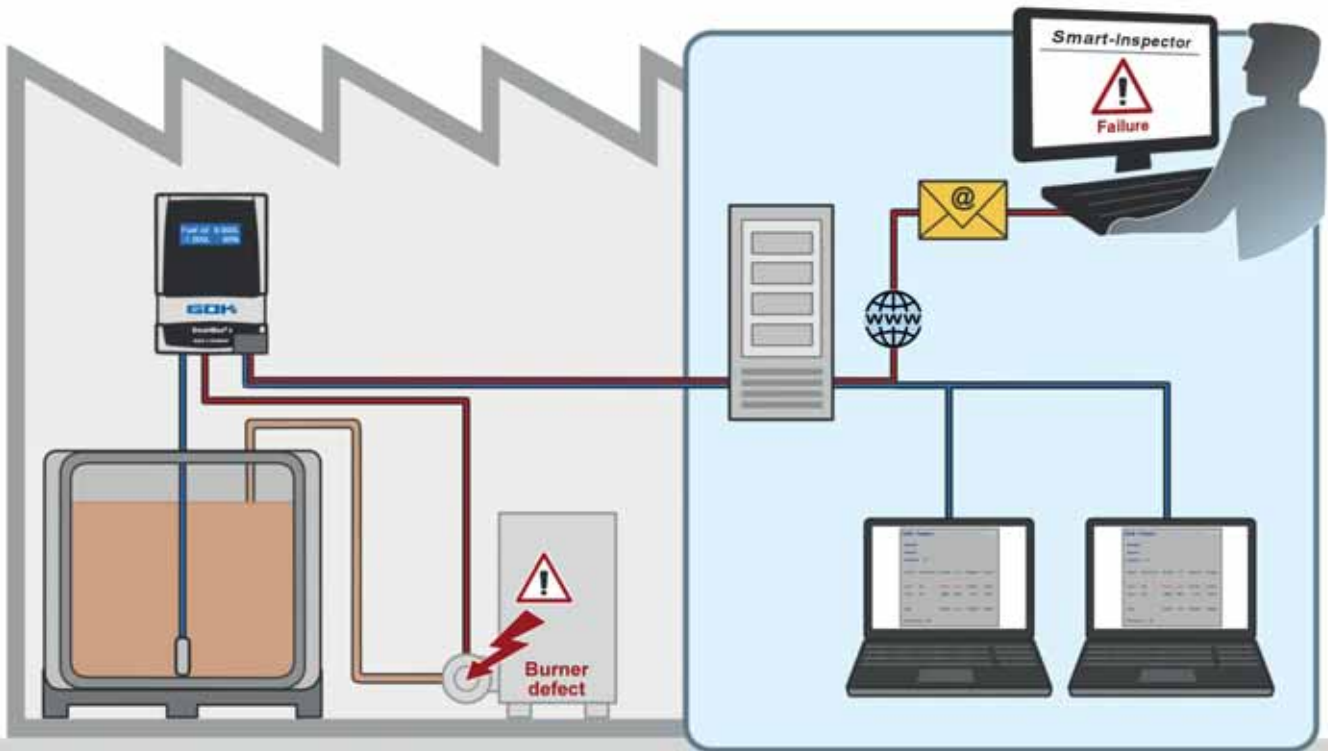
#### Internet database Smart Inspector ([www.smart-inspector.com](http://www.smart-inspector.com)):

The invoicing of user fees for the system hosting, administration, safeguarding and processing of tank data is completed by a third-party provider.

A registration form is enclosed with the appropriate products. Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.



## Network-compatible level monitoring



### SmartBox 4 LAN – The remote level gauge with network connection

The SmartBox 4 LAN is an electronic remote level gauge for non-pressurised tanks with an integrated connection for a LAN cable. This allows the operator to incorporate the filling level data in a local network. The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 4 LAN does not include a probe, as the appropriate probe type depends particularly on the operating medium and tank height.

### Free capacity and filling

Using a free capacity display, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

### Application example:

The SmartBox 4 LAN measures the content by means of a level probe and displays it on site. In addition to the filling level of a fuel oil consumer installation, the operation of the oil burner is monitored for malfunctions. The data are transmitted to an existing network via LAN. The operator or delegated individual can monitor the current filling level data by accessing the appropriate IP address in the Internet browser. The data can be optionally managed via the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). Internet access is required for this.



## Network-compatible level monitoring



### SmartBox 4 LAN

Part no.

is an electronic remote level gauge for a non-pressurised tank with a liquid operating medium including LAN (network) connection

The latest information about the contents and defined statuses, such as system malfunctions (e.g. burner malfunction), can be requested at every network workstation on site and at any time.

#### Function:

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

#### The right solution for:

- tank monitoring via existing networks.

#### The data is communicated:

- by integrated LAN connection and LAN cable to a local network
- to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com) for the full monitoring of the system. If configured appropriately, this can carry out measures independently, such as ordering fuel or deploying technicians.

#### Advantages and equipment

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

#### Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP30
- interface: optionally upgradeable for 4-20 mA, 0-5 V, M-Bus, H-protocol, for example
- event notification input, e.g. for reporting a system malfunction
- 1 relay with normally open and normally closed contact  
maximum 250 V AC - maximum 3.5 A

#### Note

- For more components, refer to accessories and add-ons.

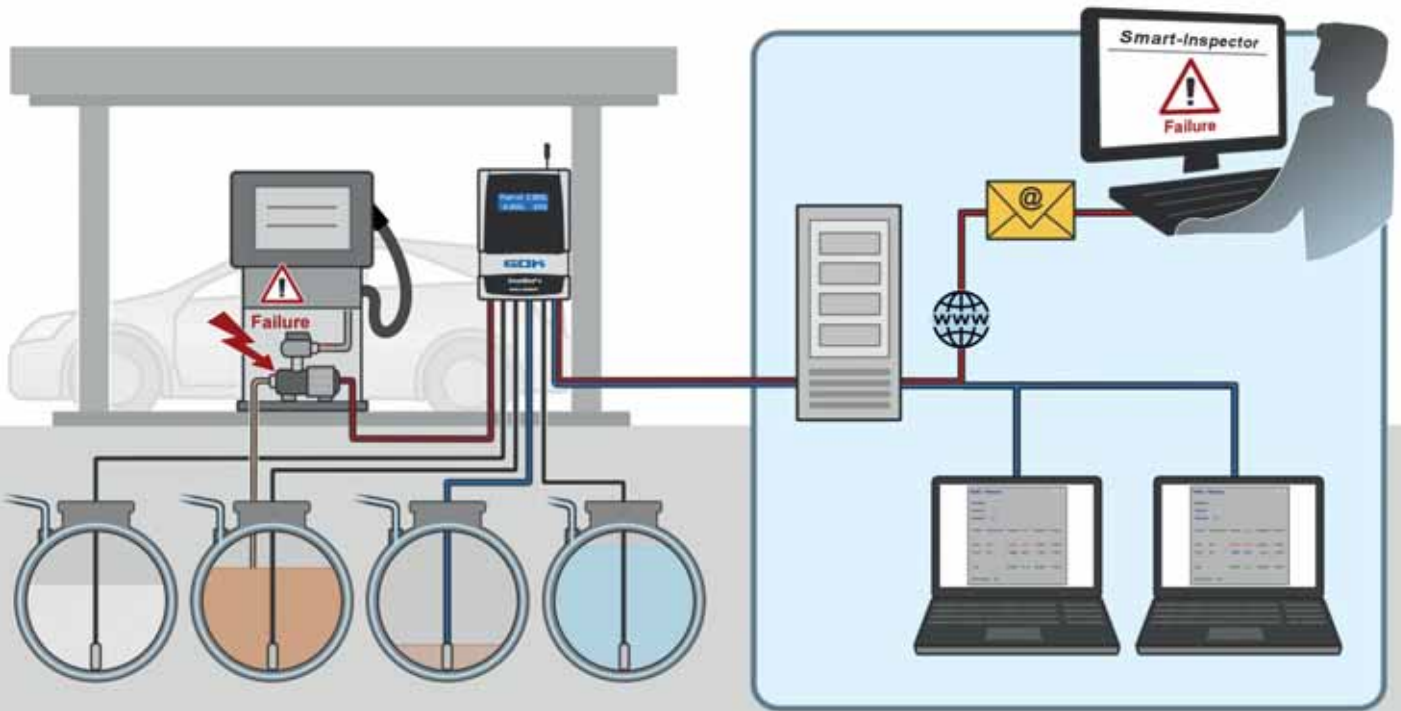
#### SmartBox 4 LAN

Display unit for dry and protected areas, IP30  
without probe

28 431 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Network-compatible level monitoring



### SmartBox 4 LAN PRO – The remote level gauge with network connection for up to four tanks

The SmartBox 4 LAN PRO is an electronic remote level gauge to monitor up to four non-pressurised tanks remotely. The device has an integrated connection for a LAN cable. This allows the operator to incorporate the filling level data in a local network. The device fulfils the requirements of the German DWA-A 791 according to a clear indication of the filling level as a volume with high accuracy. The scope of delivery of the SmartBox 4 LAN PRO does not include probes, as the appropriate probe type depends particularly on the operating medium and tank height.

#### Free capacity and filling

Using a free capacity display, tank truck drivers and operators can determine the maximum amount of litres that can be filled into the tank during the next refuelling operation. In this way, tank truck drivers and operators prevent the tank from being overfilled and the limit indicator from being activated.

**Notice:** The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

#### Application example:

Four level probes are connected to the SmartBox 4 LAN PRO which monitor the tanks with four different mediums. The display of the SmartBox shows the respective filling levels of all four tanks. In addition to the filling level, the system also monitors the pump on the dispenser. The data are transmitted to an existing network via the integrated LAN connection. The operator or delegated individual can monitor the current filling level data by accessing the appropriate IP address in the Internet browser. The data can be optionally managed via the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). Internet access is required for this.

## Network-compatible level monitoring



### SmartBox 4 LAN PRO

Part no.

is an electronic remote level gauge including LAN (network) connection for up to four non-pressurised tanks with a liquid operating medium

The latest information about the contents and defined statuses, such as system malfunctions (e.g. burner malfunction), can be requested at every network workstation on site and at any time.

#### Function:

The tank content is determined by the selected probe and relayed to the display unit by means of a 4-20 mA signal. After entering the tank data in the display unit upon start-up, the conversion of the measured values occurs automatically and is displayed on the display unit.

#### The right solution for:

- tank monitoring via existing networks. The SmartBox 4 LAN PRO records the data from up to four tanks. On this basis, tanks with different operating media and different tank heights can be managed using a single system.

#### The data is communicated:

- by integrated LAN connection and LAN cable to a local network
- to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com) for the full monitoring of the system. If configured appropriately, this can carry out measures independently, such as ordering fuel or deploying technicians.

#### Advantages and equipment

- display unit with 2-line LC display
- the measured data is shown on the digital display unit optionally as litres, percentage by volume or as the filling height in centimetres
- display of the maximum permitted discharge volume (free capacity)
- menu language and display in German, English, French or Spanish

#### Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP30
- event notification input, e.g. for reporting a system malfunction

#### Note

- For more components, refer to accessories and add-ons.

#### SmartBox 4 LAN PRO

Display unit for dry and protected areas, IP30  
without probe

28 631 00

Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.

## Components, accessories and add-ons



### SmartBox probes and accessories

Part no.

for non-pressurised tanks with a liquid operating medium

Operating media:

Waste oil, diesel, urea solution (AdBlue), fuel oil, fuel oil bio, industrial oil and rainwater

Function:

Level probes are equipped with a pressure sensor and measure the hydrostatic pressure of a liquid column. The electronics in the level probe convert the signal into a 4-20 mA output signal.

**Advantages and equipment**

- extension of the probe cable up to a maximum of 200 m

**Technical data**

- measurement range 250 mbar: urea solution (AdBlue) up to 2.30 m tank height, fuel oil up to 2.90 m tank height, water up to 2.50 m tank height
- measurement range 500 mbar: urea solution (AdBlue) up to 4.60 m tank height, fuel oil up to 5.80 m tank height, water up to 5.00 m tank height
- measurement range 1000 mbar: urea solution (AdBlue) up to 9.20 m tank height, fuel oil up to 11.60 m tank height, water up to 10.00 m tank height

**Note**

- On selecting level probes, the suitability, the density value of the operating medium and the tank height are to be taken into account.

Level probe standard to use outside EX protection zone

Stainless steel V4A, accuracy class 1%, Ø 22 mm

e.g. for urea solution (AdBlue), fuel oil, rainwater

with assembly set

level probe 0 to 250 mbar with 6 m cable

28 801 00

level probe 0 to 500 mbar with 10 m cable

28 802 00

level probe 0 to 1000 mbar with 15 m cable

28 803 00

with integrated temperature measurement

level probe 0 to 250 mbar with 6 m cable

28 831 10

(use only in connection with plug-in adapter TAM-1 28 854 00)

**Accessories**

junction box IP66 breathable

28 857 00

Other configurations, media and probe measuring ranges on request.

## Components, accessories and add-ons



### SmartBox probes and accessories

Part no.

for non-pressurised tanks with a liquid operating medium

Operating media:

Waste oil, diesel, urea solution (AdBlue), fuel oil, fuel oil bio, industrial oil and rainwater

Function:

Level probes are equipped with a pressure sensor and measure the hydrostatic pressure of a liquid column. The electronics in the level probe convert the signal into a 4-20 mA output signal.

**Advantages and equipment**

- extension of the probe cable up to a maximum of 200 m

**Technical data**

- measurement range 250 mbar: urea solution (AdBlue) up to 2.30 m tank height, fuel oil up to 2.90 m tank height, water up to 2.50 m tank height
- measurement range 1000 mbar: urea solution (AdBlue) up to 9.20 m tank height, fuel oil up to 11.60 m tank height, water up to 10.00 m tank height

**Note**

- On selecting level probes, the suitability, the density value of the operating medium and the tank height are to be taken into account.
- We recommend assembly with a stainless steel tube, if possible.

Level probe for storage tanks to use outside EX protection zone

Stainless steel V4A, accuracy class 0.5%, Ø 24 mm

e.g. for diesel, urea solution (AdBlue), fuel oil, rainwater

with assembly set

level probe 0 to 250 mbar with 6 m cable

28 891 00

level probe 0 to 1000 mbar with 15 m cable

28 893 00

**Accessories**

stainless steel tube 12 x 1.5 mm (1.4301) required as cable protection

28 862 00

junction box IP66 breathable

28 857 00

Other configurations, media and probe measuring ranges on request.

## Components, accessories and add-ons



### SmartBox probes and accessories

Part no.

for non-pressurised tanks with a liquid operating medium

Operating media:  
Kerosene and petrol

Function:

Level probes are equipped with a pressure sensor and measure the hydrostatic pressure of a liquid column. The electronics in the level probe convert the signal into a 4-20 mA output signal.

**Advantages and equipment**

- extension of the probe cable up to a maximum of 200 m

**Technical data**

- measurement range 250 mbar: petrol up to 3.30 m tank height

**Note**

- On selecting level probes, the suitability, the density value of the operating medium and the tank height are to be taken into account.

**Level probe EX-model**

Stainless steel V4A, accuracy class 0.2%, Ø 40 mm

e.g. for petrol

with assembly set

EX protection zone level probe 0 to 250 mbar with 6 m cable

(for use only in conjunction with explosion-proof barrier 28 861 00)

28 846 00

**Accessories**

explosion-proof barrier (required for level probes used in hazardous areas)

28 861 00

IP65 housing, for explosion-proof barrier

28 865 00

junction box IP66 breathable for EX protection zone

28 867 00

Other configurations, media and probe measuring ranges on request.

## Components, accessories and add-ons







Mechanical level gauge type FSA-W	Part no.
<p>for non-pressurised tanks with a liquid operating medium in dry and protected areas (measuring accuracy: <math>\pm 3\%</math>)</p> <p>Operating media: Waste oil, diesel, FAME, urea solution (AdBlue), fuel oil, fuel oil bio, vegetable oil, rainwater and other water-endangering, non-flammable liquids</p> <p>Function: The content of the tank is determined by measuring the filling height on the basis of the float principle. The FSA-W 4-20 mA converts the measurement result into a current signal and relays it by means of a cable to the digital display unit SmartBox. The tank content, expressed as the filling height in centimetres, can also be read at all times on the scale of the mechanical level gauge type FSA-W 4-20 mA.</p> <p><b>Advantages and equipment</b></p> <ul style="list-style-type: none"> <li>• odour-free version</li> <li>• extension of the probe cable up to a maximum of 100 m</li> </ul> <p><b>Technical data</b></p> <ul style="list-style-type: none"> <li>• measurement range: 0 to 2.40 m tank height</li> <li>• tank connector: G 1 1/2</li> <li>• protection type: IP30</li> <li>• connection cable: 10 m</li> <li>• diameter float type FSA-W 4-20 mA: 38 mm</li> </ul> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>• For more components, refer to accessories and add-ons.</li> </ul> <p><b>Mechanical level gauge type FSA-W</b> Display unit for dry and protected areas, IP30 complete</p> <p>Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.</p>	<p>28 903 00</p>

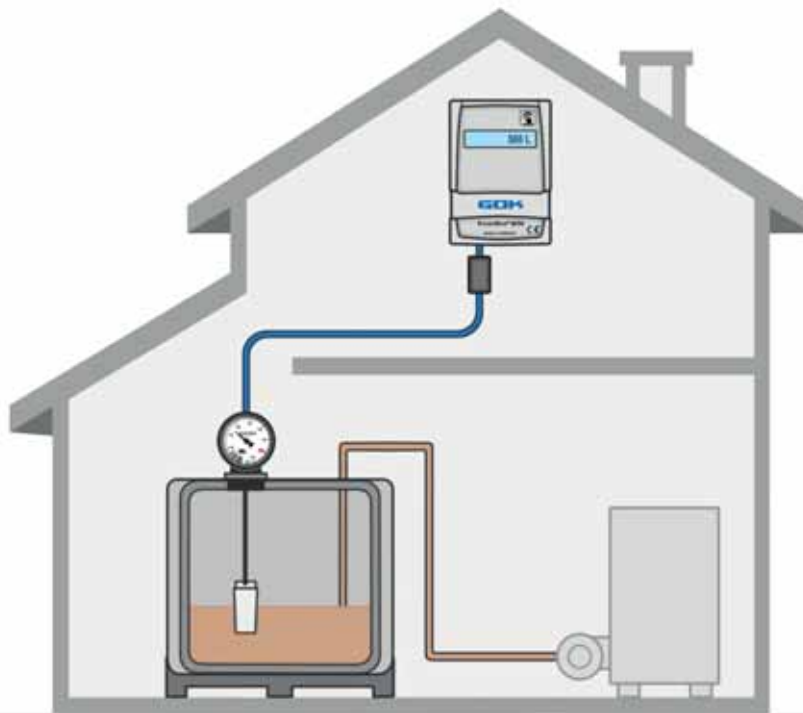
## Components, accessories and add-ons

Accessories and add-ons for SmartBox	Part no.
Components, individual parts and spare parts for SmartBox	
<b>Adapters and interfaces</b>	
data transfer module analogue 0 to 5 V DTM-1	28 851 00
data transfer module analogue 4 to 20 mA DTM-3	28 853 00
M-Bus interface DTM-4	28 863 00
plug-in adapter for temperature measurement TAM-1	28 854 00
<b>Remote data transmission</b>	
additional antenna for SmartBox 4 and SmartBox 5	28 858 00
<b>H-Box</b>	
interface module for transferring tank data about fuel terminals to checkout systems with H-protocol	28 855 00



## Components, accessories and add-ons

	www.smart-inspector.com	Part no.
 <p>Password-protected database</p>	<p>Internet-based monitoring system for tank data:</p> <ul style="list-style-type: none"> <li>• tank content</li> <li>• limit notification, e.g. minimum level</li> <li>• system malfunction, e.g. pump or burner malfunction</li> </ul>	
 <p>Facility overview</p>	<p>Complete solution: The following functions and data can be queried and actively reported over the Internet with encrypted access authorisation:</p>	
 <p>Graphic preparation</p>	<ul style="list-style-type: none"> <li>• tank data (as described above) graphically processed and displayed</li> <li>• consumption</li> <li>• reporting date query, e.g. report at the end of the month to provide the basis for the invoicing of statistical functions (consumption pattern)</li> <li>• forwarding of reports and action commands in critical situations by text message or email to two separate mobile phone numbers (mobile phone) / PC, e.g.:             <ul style="list-style-type: none"> <li>• service technician in the case of a burner malfunction</li> <li>• heating oil supplier when filling level low</li> <li>• individual notification intervals - time-related, consumption-related or both - can be adjusted easily from a remote location</li> </ul> </li> </ul>	
 <p>Stock curve</p>	<p>The costs comprise a combination of server usage fees as well as text message costs:</p> <ul style="list-style-type: none"> <li>• server usage fees:             <ul style="list-style-type: none"> <li>use of the server, data processing, data protection and administration per data transmission system for a maximum of 4 tanks, on request (see description of SmartBox 4, SmartBox 4 PRO and/or SmartBox 5).</li> </ul> </li> <li>• text message costs:             <ul style="list-style-type: none"> <li>additional costs are incurred for direct queries of the SmartBox from the Smart-Inspector or with the forwarding of alarm, malfunction or limit value notifications to a mobile telephone.</li> </ul> </li> <li>• additional costs of the SmartBox SIM card:             <ul style="list-style-type: none"> <li>Depending on the frequency and settings of the respective SmartBox notifications, the text message fees are charged to the SIM card.</li> </ul> </li> </ul>	
	<p>www.smart-inspector.com</p> <p>annual costs of system hosting, administration, backup and preparation of tank data</p> <p>The contract is for 1 year and is extended automatically by another 12 months if the contract is not terminated with at least 3 months' notice. The invoicing of user fees for the system hosting, administration, safeguarding and processing of tank data is completed by a third-party provider.</p>	58 703 00



**SmartBox MINI – Electronic remote level gauge with display in litres, percentage by volume or as filling height in centimetres**

The SmartBox MINI is a battery-operated, electronic remote level gauge for a non-pressurised tank with a liquid operating medium. On the SmartBox menu, the operator can specify whether the filling level is to be displayed in litres, percentage by volume or centimetres.

**Application example:**

The mechanical level gauge type FSA-E is installed directly on the tank. By means of the so-called float principle, it measures the filling height in centimetres, which it shows on the scale. Using an electronic interface and a connection cable, the measured value is relayed to the SmartBox MINI digital display unit, where it is converted into the set output value and shown on the display.

## Filling level and content measurement



### SmartBox MINI

Part no.

is a battery-operated, electronic remote level gauge for a non-pressurised tank with a liquid operating medium

consisting of: digital display unit with 16-digit LC display and mechanical level gauge type FSA-E with 10 m cable

#### Operating media:

Waste oil, diesel, FAME, urea solution (AdBlue), fuel oil, fuel oil bio, vegetable oil, rainwater and other water-endangering, non-flammable liquids

#### Function:

The content of the tank is determined by measuring the filling height on the basis of the float principle. With the use of an electronic interface, the filling level signal is transferred via a cable which can be extended to up to 50 m to the SmartBox MINI digital display unit, where it is converted into the set output value and shown on the display.

By touching the sensor on the digital display unit, depending on the individual settings, the tank content is reported in litres, percentage by volume or as the filling height in centimetres for a few seconds.

Independently of this, the tank content, expressed as the filling height in centimetres, can also be read at all times on the scale of the mechanical level gauge type FSA-E.

#### Conformity

- CE marking according to EMC and RoHS

#### Technical data

- accuracy of the digital display unit:  $\pm 2\%$  of the end value of the measurement range
- supply voltage: 3 batteries type AA (included)
- protection type: IP30
- diameter float type FSA-E:
  - measurement range 0 to 160 cm: 31 mm
  - measurement range 0 to 250 cm: 38 mm
- connection tank: G 1 1/2 M

#### Note

- The mechanical level gauge type FSA-E with the measurement range 0 to 160 cm is suitable for non-pressurised tanks up to a filling height of 150 cm.
- The mechanical level gauge type FSA-E with the measurement range 0 to 250 cm is suitable for non-pressurised tanks up to a filling height of 240 cm.

#### SmartBox MINI

Display unit for dry and protected areas, IP30

Level gauge type FSA-E for dry and protected areas, IP30

Measurement range type FSA-E 0 to 160 cm, filling height tank 0 to 150 cm

28 900 02

Measurement range type FSA-E 0 to 250 cm, filling height tank 0 to 240 cm

28 900 04

#### Spare Part

mechanical level gauge type FSA-E for measurement range 0 to 160 cm

28 900 22

mechanical level gauge type FSA-E for measurement range 0 to 250 cm

28 900 24

display unit SmartBox MINI

28 900 28

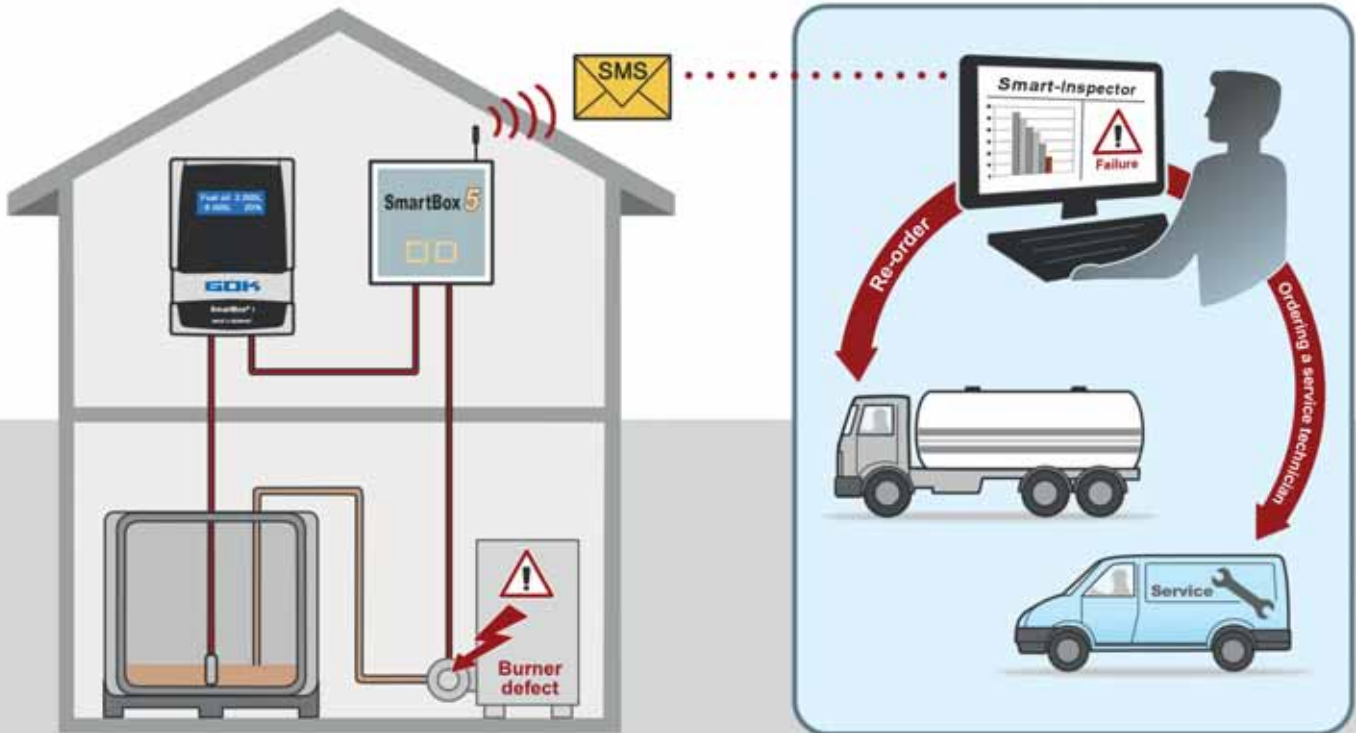
sensor assembly with 10 m cable

28 900 29

#### Accessories

reducer for tank connection plastic G 2 M x G 1 1/2 F, material: PA

15 289 20



(Fig. 1)

**SmartBox 5 – The data transmitter and event notifier**

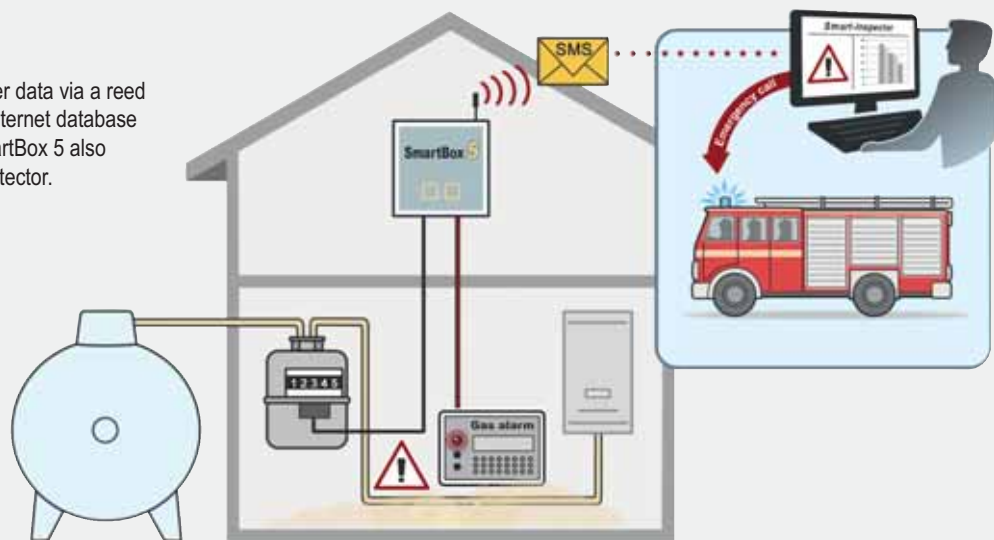
**Application examples:**

**Oil firing installation: (Fig. 1)**

The SmartBox 5 has been added to the electronic remote level gauge SmartBox 1, in order to send the filling level data by text message to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). In the event of a burner malfunction, it sends a notification to the service technician and can also trigger a fuel order automatically or manually if required.

**LPG system: (Fig. 2)**

The SmartBox 5 reads the gas meter data via a reed contact and sends the data to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com). The SmartBox 5 also monitors the functioning of a gas detector.



(Fig. 2)

## Event monitoring and remote transmission



### SmartBox 5

Part no.

is the data transmission system for existing measuring systems and event notifications or as a stand-alone device for the communication of events

consisting of: GSM data transmitter with status indicator and two independent function inputs

The right solution for:

- The remote transmission of filling levels, e.g. from a maximum of four SmartBox 1/2/3
- The forwarding of a system malfunction, e.g. a burner malfunction
- The connection of, for example, gas detectors and/or leak detection systems for remote monitoring
- The connection of a pulse meter (e.g. water meter, oil meter), event counter (e.g. hood counter) or operating hours meter

Required for operation:

It is possible to choose between a prepaid card and a SIM card contract. With a prepaid card, you must always check that sufficient credit is available. The SIM card is not included in the scope of delivery!

Technical data

- supply voltage: 230 V AC 50 Hz
- protection type: IP30
- interface: for the connection of up to 4 remote level gauges - SmartBox 1/2/3
- two independent function inputs

Note

- For more components, refer to accessories and add-ons.

SmartBox 5

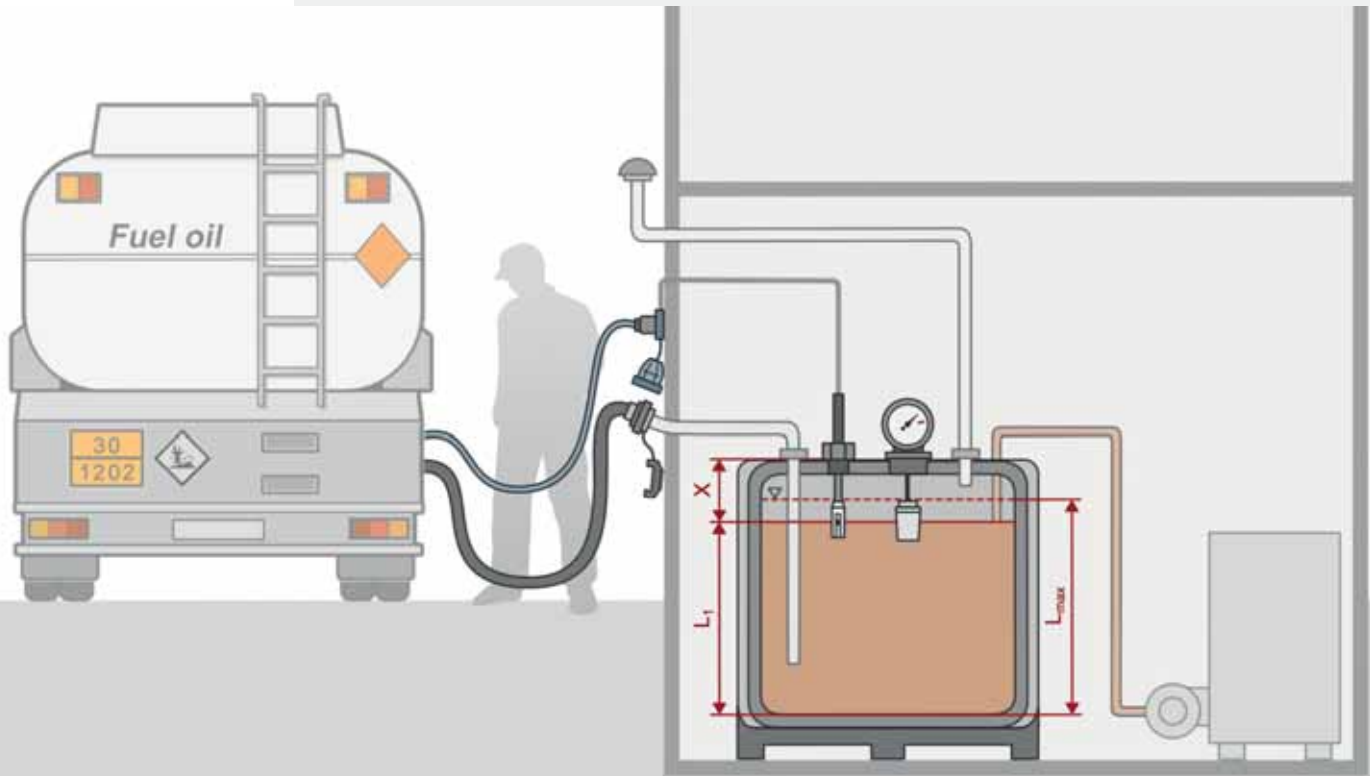
Display unit for dry and protected areas, IP30  
data transmission system

28 500 00

Internet database Smart Inspector ([www.smart-inspector.com](http://www.smart-inspector.com)):

The invoicing of user fees for the system hosting, administration, safeguarding and processing of tank data is completed by a third-party provider.

A registration form is enclosed with the appropriate products. Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.



### Limit indicator

#### Application example:

The limit indicator type GWD is installed in the tank. In connection with the overfill prevention (controller) of the road tanker, it functions as a safety device to prevent overfilling.

The limit indicator type GWD is positioned at the setting dimension X at L<sub>1</sub> in the tank. The actual filling level is lower than L<sub>max</sub> because the specified setting dimension, the switching delay of the overfill prevention and the overrun volumes have to be considered.

#### Information about limit indicators

In accordance with the regulations for protecting waterways against pollution, it is necessary to prevent the overfilling of tanks that are used for liquid fuels. This requirement is fulfilled if the road tanker is equipped with overfill prevention and tanks are equipped with a specified limit indicator, as shown in the application example.

The tank truck driver must determine how many litres fit into the tank before starting the filling operation. The deliberate filling of the tank until the tripping of the limit indicator is not permitted!

The setting dimensions for the respective tanks are provided in the assembly and operating manuals.

#### Product information

For the convenient determination of the permitted filling quantity, we recommend our remote level gauges SmartBox 1, 2, 3 and 4. Using the current filling level and tank data, these remote level gauges automatically determine how many litres will fit into the tank at the time of filling.

## Safety and monitoring



with loose wall fitting



with assembled wall fitting

### Limit indicator type GWD

Part no.

as safety device to prevent overfilling for above-ground, non-pressurised tanks positioned indoors

Construction product for stationary systems used for the storage, filling and handling of water-endangering substances:

- EN 13616: sensor as part of an overfill prevention device of type B (B1) (current interface)
- EN 13616-2: overfill prevention device sensor as part of an overfill prevention device without a closing unit

Operating media:

Non-flammable liquids and inflammable category 3 liquids with a flash point above 55°C, such as diesel, FAME, fuel oil, fuel oil bio and vegetable oil

Field of application:

- above-ground battery tanks according to DIN 6620
- locally manufactured steel tanks for above-ground storage according to DIN 6625-1, DIN 6625-2, ÖNORM C 2117
- tanks according to NBN I 03-002
- stationary non-pressurised tanks made of thermoplastics according to EN 13341 and EN 12573 parts 1 to 3
- above-ground GRP tanks according to EN 13121 parts 1 to 4
- other above-ground tanks with a type-approved certificate of suitability for intended use

Conformity

- construction product for use in areas prone to flooding and risk areas
- CE marking according to EU CPR: declaration of performance according to EN 13616
- CE marking according to EMC and RoHS
- Belgium: VINCOTTE with prototype no. 99/H031/03060502

Technical data

- connection tank: G 1 M
- probe length: 305 mm
- probe tube diameter: 10 mm
- sensor: glass-encapsulated PTC
- materials: probe tube: aluminium EN AW-6060  
screw-in unit: ABS, PA  
sensor cover: PA

Note

- For limit indicator test device, refer to part no. 15 097 00.

Limit indicator type GWD

with loose wall fitting type 905, grey

probe length 305 mm connection cable 1200 mm

15 080 00

probe length 305 mm connection cable 4700 mm

15 305 00

with assembled wall fitting type 905, grey

probe length 305 mm connection cable completely wired

15 080 10

without wall fitting

probe length 305 mm connection cable 1200 mm

15 080 04

probe length 305 mm connection cable 4700 mm

15 305 04

Probe lengths from 100 to 1000 mm as custom-made products, as well as additional products for other target markets, are available on request.

## Safety and monitoring



### Replacement limit indicator type GWD

Part no.

as safety device to prevent overfilling for above-ground, non-pressurised tanks positioned indoors

for the replacement of a defective limit indicator

Construction product for stationary systems used for the storage, filling and handling of water-endangering substances:

- EN 13616: sensor as part of an overflow prevention device of type B (B1) (current interface)
- EN 13616-2: overflow prevention device sensor as part of an overflow prevention device without a closing unit
- TRbF 511: limit indicator

Operating media:

Non-flammable liquids and inflammable category 3 liquids with a flash point above 55°C, such as diesel, FAME, fuel oil, fuel oil bio and vegetable oil

Field of application:

- above-ground battery tanks according to DIN 6620
- locally manufactured steel tanks for above-ground storage according to DIN 6625-1, DIN 6625-2, ÖNORM C 2117
- tanks according to NBN I 03-002
- stationary non-pressurised tanks made of thermoplastics according to EN 13341 and EN 12573 parts 1 to 3
- above-ground GRP tanks according to EN 13121 parts 1 to 4
- other above-ground tanks with a type-approved certificate of suitability for intended use

Conformity

- construction product for use in areas prone to flooding and risk areas
- CE marking according to EU CPR: declaration of performance according to EN 13616
- CE marking according to EMC and RoHS
- Belgium: VINCOTTE with prototype no. 99/H031/03060502

Technical data

- probe tube diameter: 10 mm
- sensor: glass-encapsulated PTC
- materials: probe tube: aluminium EN AW-6060  
sensor cover: PA

Note

- For limit indicator test device, refer to part no. 15 097 00.
- The screw-in unit and the wall fitting are not included in the scope of delivery!
- Installing a replacement limit indicator without screw-in unit is only possible if the existing screw-in unit or the existing tank panel / tank flange including the related attachment parts, is capable of supporting the probe tube with a diameter of 10 mm. The setting dimension X can be found in the hitherto assembly manual of the limit indicator or tank manufacturer and must be set accordingly.

### Replacement limit indicator type GWD without wall fitting

probe length 305 mm connection cable 4700 mm

15 304 00

probe length 360 mm connection cable 4700 mm

15 304 10

Accessories

screw-in unit for limit indicator type GWG, connection G 1 M

15 381 29



## Safety and monitoring



### Screw-in unit of limit indicator GWG

Part no.

for the attachment of a probe tube with outside diameter of 10 mm of limit indicators, such as type GWD, filling level limiters, such as the filling level sensor FSS, or probes of overflow prevention devices, e.g. type BC-2, for integration into tanks

consisting of: tank-screw-in unit with G 1 M, insert for probe tube mounting, locking screw and gaskets

#### Advantages and equipment

- guaranteed odour-free, without any further accessories
- accessible, secure locking of the probe tube for a correct setting dimension
- problem-free withdrawal and reinsertion of the probe tube from the tank or its containment facility by undoing the fixing screw at the insert during maintenance, repair work and testing in accordance with e.g. the German worksheet DWA-A 791
- UV-stabilised plastic and elastomers
- suitable for use in areas prone to flooding and risk areas

#### Technical data

- connection tank: G 1 M
- material: tank screw-in unit: PA  
insert: ABS, PA  
gaskets: FKM, HNBR

### Screw-in unit of limit indicator GWG

complete

15 381 29

## Safety and monitoring



with telescopic tube



with loose wall fitting



with assembled pipe fitting

### Limit indicator type GWS

Part no.

as safety device to prevent overfilling for above-ground and underground, non-pressurised tanks positioned indoors and outdoors (e.g. dome)

Construction product for stationary systems used for the storage, filling and handling of water-endangering substances:

- EN 13616: sensor as part of an overfill prevention device of type B (B1) (current interface)
- EN 13616-2: overfill prevention device sensor as part of an overfill prevention device without a closing unit

Operating media:

Non-inflammable liquids and inflammable category 1, 2 or 3 liquids, such as bioethanol, diesel, FAME, aviation fuel, fuel oil, fuel oil bio, HVO, industrial oil, kerosene, petrol, vegetable oil, shipping fuel and special petrol

Field of application:

- above-ground battery tanks according to DIN 6620
- underground and above-ground cylindrical, horizontal steel tanks according to DIN 6608-1, DIN 6608-2, DIN 6616, DIN 6617, DIN 6624-1, DIN 6624-2, EN 12285-1, EN 12285-2, EN 12285-3, ÖNORM C 2110, ÖNORM C 2115, ÖNORM C 2118
- locally manufactured steel tanks for above-ground storage according to DIN 6625-1, DIN 6625-2, ÖNORM C 2117
- stationary non-pressurised tanks made of thermoplastics according to EN 13341 and EN 12573 parts 1 to 3
- above-ground GRP tanks according to EN 13121 parts 1 to 4
- cylindrical, vertical steel tanks according to DIN 6618-1, DIN 6618-2, DIN 6618-3, DIN 6619-1, DIN 6619-2, DIN 6623-1, DIN 6623-2, ÖNORM C 2116
- tanks according to NBN I 03-002, NBN I 03-003, NBN I 03-004
- above-ground cylindrical flat-bottom tank structures made of metal materials according to DIN 4119-1 and EN 1993-4-2
- other above-ground tanks with a certificate of suitability for intended use
- fuel tanks according to RheinSCHUO
- fuel tanks for water craft according to the German worksheet DWA-A 783
- vehicle fuel tanks

Conformity

- construction product for use in areas prone to flooding and risk areas
- CE marking according to EU CPR: declaration of performance according to EN 13616
- CE marking according to ATEX: EC-type examination certificate no. EPS 15 ATEX 1 032 X
- CE marking according to EMC and RoHS
- Belgium: VINCOTTE with prototype no. 99/H031/03060501

Technical data

- connection tank: G 1 M
- marking according to ATEX: EX II 1/2G Ex ia IIB T4 Ga/Gb
- probe tube diameter: 20 mm
- sensor: glass-encapsulated PTC
- materials:
 

probe tube:	steel
screw-in unit:	steel
sensor cover:	zinc die-casting

Note

- For limit indicator test device, refer to part no. 15 097 00.

## Safety and monitoring

### Limit indicator type GWS

Part no.

**Limit indicator type GWS**

with height-adjustable pipe fitting type 904, grey  
height adjustment using telescopic tube

probe length 700 mm + telescopic length 170 to 600 mm

15 081 41

probe length 1000 mm + telescopic length 170 to 760 mm

15 081 42

with loose wall fitting type 905, grey  
without connected cable

probe length 400 mm

15 080 80

probe length 700 mm

15 080 81

probe length 1000 mm

15 080 82

with assembled pipe fitting type 904, grey

probe length 400 mm

15 080 40

probe length 700 mm

15 080 41

probe length 800 mm

15 080 43

probe length 900 mm

15 080 44

probe length 1000 mm

15 080 42

Probe lengths from 100 to 3000 mm as custom-made products, as well as additional products for other target markets, are available on request.

### Connector for limit indicator

Part no.

without cable

**Spare Part**

plug-in connector for connection to limit indicator fitting type 903 (Figure 1)

15 099 35

limit indicator fitting for pipe assembly, plastic grey, type 904 (Figure 2)

15 082 06

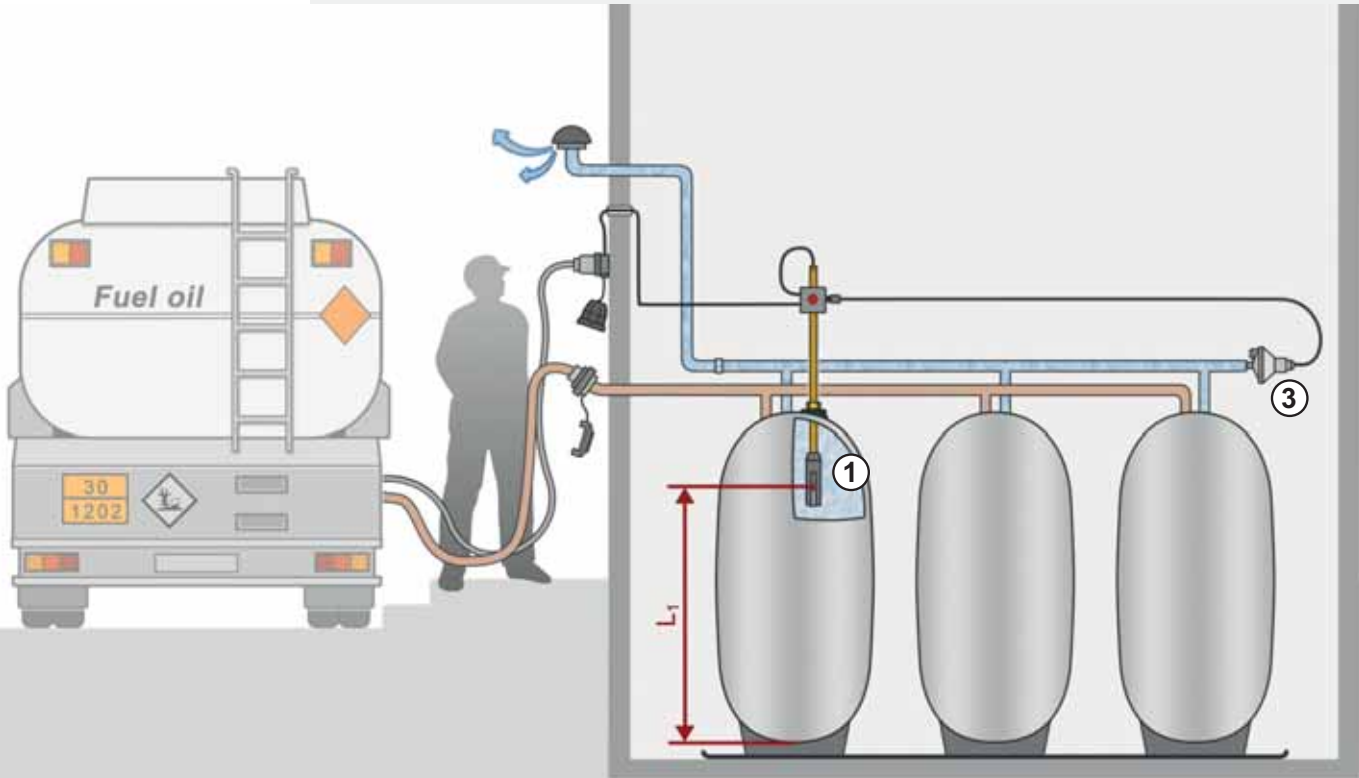
limit indicator fitting for wall assembly, plastic grey, type 905 (Figure 3)

15 080 06

filling hole plug for limit indicator, type 906 (Figure 4)

15 029 00





**Safety system type F-Stop GWG-DEV**

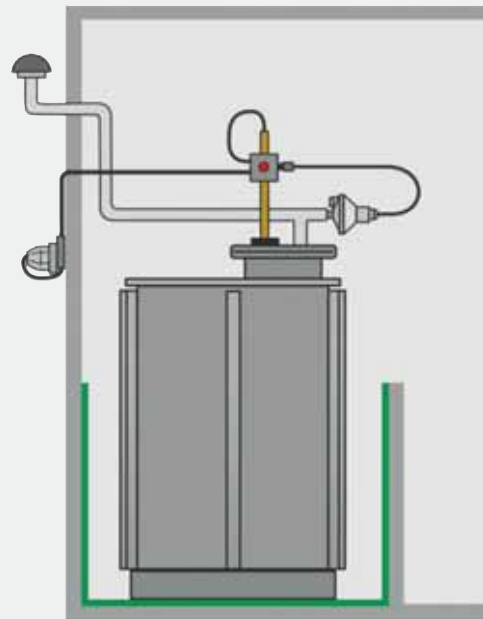
F-Stop GWG-DEV is a pressure monitoring system for tanks. F-Stop GWG-DEV monitors the pressure in the ventilation line of individual tanks or battery tanks during the filling operation. This safety device against tank overpressure must be connected with the overfill prevention of the road tanker. The limit indicator remains the interface and functional part of the F-Stop.

**Application example 1: (Fig. 1)**

The pressure monitor (3) assumes the pressure monitoring in the ex-works ventilation facility of the GRP battery tank. If the pressure reaches the nominal response pressure of 30 mbar, the signal is triggered via the connection unit to the electric circuit of the limit indicator (1) to interrupt the filling. Factory-produced, single-wall tanks made of GRP with a rated volume up to 2 m³ and a total rated volume up to 10 m³ in the case of battery tanks without an integrated containment facility must be equipped with a safety device against overpressure that prevents an overpressure in the tank of more than double the static pressure of water with reference to the lowest point of each tank. If they are not present in fuel oil consumer installations that are already in operation, factory-produced, single-wall GRP tanks without an integrated containment facility are to be retrofitted.

**Application example 2: (Fig. 2)**

A rectangular steel tank according to DIN 6625-1 must additionally be equipped with an overpressure safety device that prevents a higher pressure than the test pressure in the tank. Instead of the mechanical overpressure safety device, F-Stop GWG-DEV assumes its function in the on-site ventilation line.



(Fig. 2)

## Safety and monitoring



### Safety system type F-Stop GWG-DEV

Part no.

pressure monitor DEV as safety device to prevent overpressure for tanks, which, together with an existing limit indicator, interrupts a filling operation when a defined pressure is reached in the tank

consisting of: pressure monitor DEV, connection unit I with end piece plug and mounting accessories

Operating media:  
Diesel, FAME, fuel oil, fuel oil bio and vegetable oil

Field of application:

- installation in the ventilation line of the tank or into the tank's joint ventilation line of battery tanks
- maximum length of the on-site ventilation line nominal width DN 40: 10 m, nominal width DN 50: 40 m
- maximum filling volume flow rate 600 l/min

Advantages and equipment

- suitable technical measures according to requirements of the German DWA-A 785 and 791 worksheets
- overpressure protection for tanks according to DIN 6625
- LED in connection unit I which signals the reaching of the nominal set pressure
- if the pressure in the tank falls below the nominal set pressure, a continued filling is possible once again subsequent to the identification and rectification of the cause
- if connection unit I is installed, a separate check of the on-site limit indicator can be carried out with the end piece plug which is included in the scope of delivery

Conformity

- general type approval no. Z-65.17-495
- CE marking according to EMC and RoHS

Technical data

- nominal set pressure 30 mbar
- connection of pressure monitor G 1/4 M with O-ring seal
- connection of pressure monitor DEV to connection unit I with plug
- length of the connection cable of pressure monitor DEV - connection unit I: 4 m
- 3 cable ties for connection cable
- fastening of connection unit I to probe tube diameter of 10 mm of the limit indicator using clips
- material: pressure monitor housing: ZP0410  
diaphragm: FKM

Note

- If it is not possible to install in the tank's ventilation line, the pressure monitor DEV may be installed in the on-site ventilation line at the smallest possible distance from the tank.
- With the on-site stripping of its connection cable and the connection of the cable ends in connection unit I, the electric circuit of the limit indicator is co-used for the pressure monitor DEV.

Safety system type F-Stop GWG-DEV

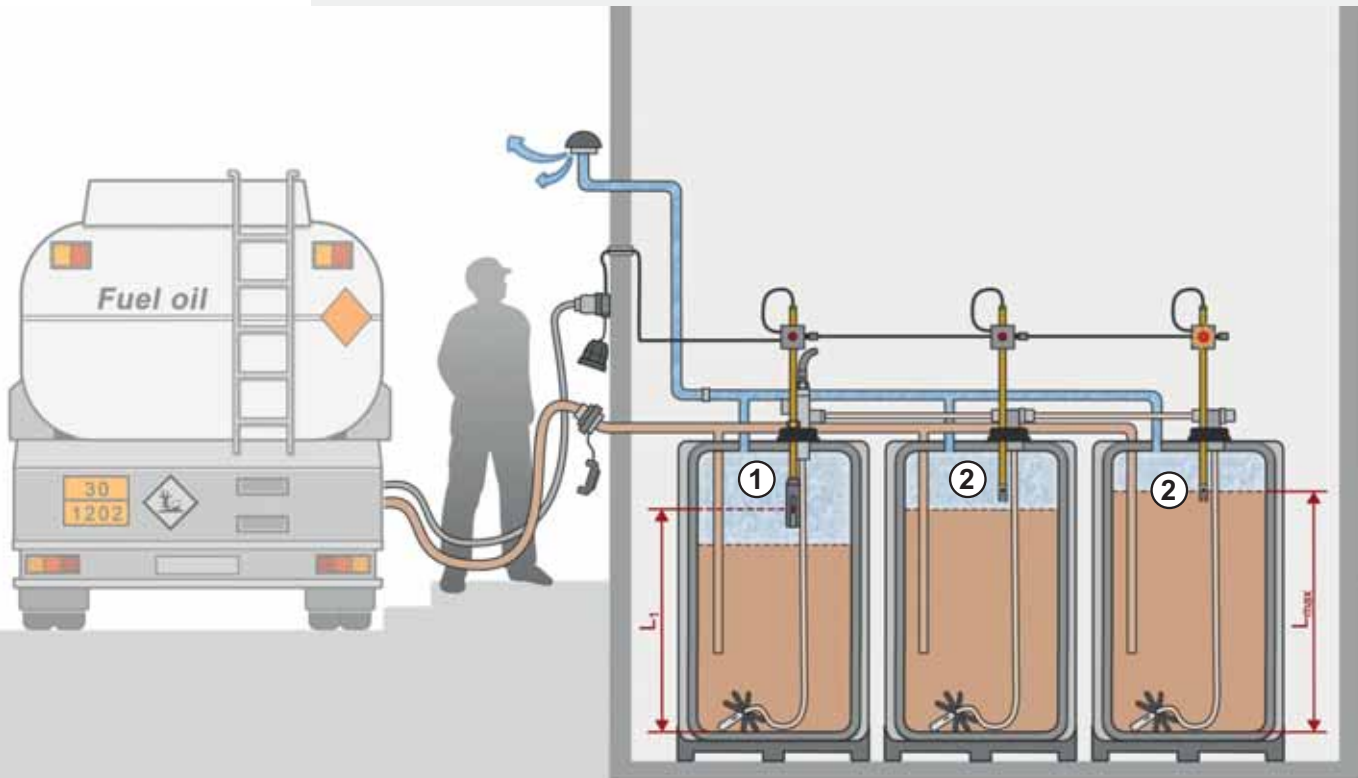
complete

16 600 10

Accessories

end plate G 1/4 F, for the installation of the pressure monitor DEV in the ventilation line of tanks with a nominal width of DN 40

16 600 27



**Safety system type F-Stop GWG-FSS**

F-Stop GWG-FSS is an overfill protection system for tanks. The system monitors the filling level of all the individual tanks of a battery tank during the filling operation. The safety system type F-Stop GWG-FSS must be connected with the overfill prevention of the road vehicle.

The limit indicator remains the interface and functional part of the F-Stop.

**Application example:**

A limit indicator (1) is installed in the first tank of the battery tank and a filling level sensor FSS (2) is installed in each additional tank. In connection with the limit indicator and the overfill prevention of the road tanker, the filling level sensors prevent the overfilling of the battery tank.

$L_1$  – Filling height with setting dimension X of the limit indicator

$L_{max}$  – maximum permitted filling height with setting dimension  $X_{FSS}$  of the filling level sensor at 95% (V/V) filling level

## Safety and monitoring



connection unit I  
with end piece plug



connection unit II  
with filling level sensor  
and connection cable

### Safety system type F-Stop GWG-FSS

Part no.

filling level sensor FSS as a filling level limiter according to German DWA-A 791 and part of a safety device to prevent overfilling, which together with an existing limit indicator in the first tank of battery tank systems, automatically prevents the permitted filling level being exceeded when the permitted filling level of 95% (V/V) is reached in another tank

basic unit consisting of: connection unit I with end piece plug, connection unit II with filling level sensor and connection cable and mounting accessories

extension unit consisting of: connection unit II with filling level sensor and connection cable and mounting accessories

Operating media:

Diesel, FAME, fuel oil, fuel oil bio and vegetable oil

Field of application:

- installation in the tanks of battery tank systems which are not equipped with a limit indicator

#### Advantages and equipment

- installation of the filling level sensor FSS in each free tank panel or in the level gauge type FSA for GWD/FSS, which is able to incorporate a filling level limiter FSS
- for the individual tanks without a limit indicator, a battery tank system can simultaneously be equipped with up to 10 filling level sensors FSS
- if one tank reaches its permitted filling level, it is impossible to continue filling the other tanks
- filling level sensor as visual sensor with cover
- filling level sensors can be removed from the tank without any problem during recurrent testing
- filling level sensor pre-assembled with connection unit II and connection cable with plug to an additional connection unit II or to connection unit I on the limit indicator GWG
- LED in connection unit II, which signals the reaching of the permitted filling level
- if connection unit I is installed, a separate check of the on-site limit indicator can be carried out with the end piece plug which is included in the scope of delivery

#### Conformity

- general type approval no. Z-65.17-495
- CE marking according to EMC and RoHS

#### Technical data

- probe tube diameter: 10 mm
- probe length: 300 mm
- attachment of connection unit I and II to the probe tube of the limit indicator or of the filling level sensor FSS with a probe tube diameter of 10 mm using clips
- connection of the cable of the limit indicator via terminals in connection unit I
- length of connection cable from connection unit II to connection unit I or to an additional connection unit II: 1.5 m
- 2 cable ties for connection cable
- length of filling level sensor FSS cable to connection unit II: 0.25 m
- dimensions of connection unit H/W/D: 67 x 67 x 28 mm
- probe tube material: aluminium EN AW-6060

#### Note

- The tank manufacturer must specify the setting dimension  $X_{FSS}$  for the permitted filling level of 95% (V/V).
- The supplied end piece plug must always be inserted in the socket of the final connection unit II.
- With the on-site stripping of its connection cable and the connection of the cable ends in connection unit I, the electric circuit of the limit indicator is co-used for the filling level sensor FSS.

## Safety and monitoring

Safety system type F-Stop GWG-FSS	Part no.
Safety system type F-Stop GWG-FSS	
basic unit	16 600 00
extension unit	16 602 00
Accessories	
screw-in unit for limit indicator type GWG, connection G 1 M	15 381 29
level gauge type FSA for GWD/FSS G 1 1/2 M measurement range: 160 cm	15 278 14
level gauge type FSA for GWD/FSS G 1 1/2 M measurement range: 250 cm	15 278 13



extension unit  
of the safety system  
type F-Stop GWG-FSS

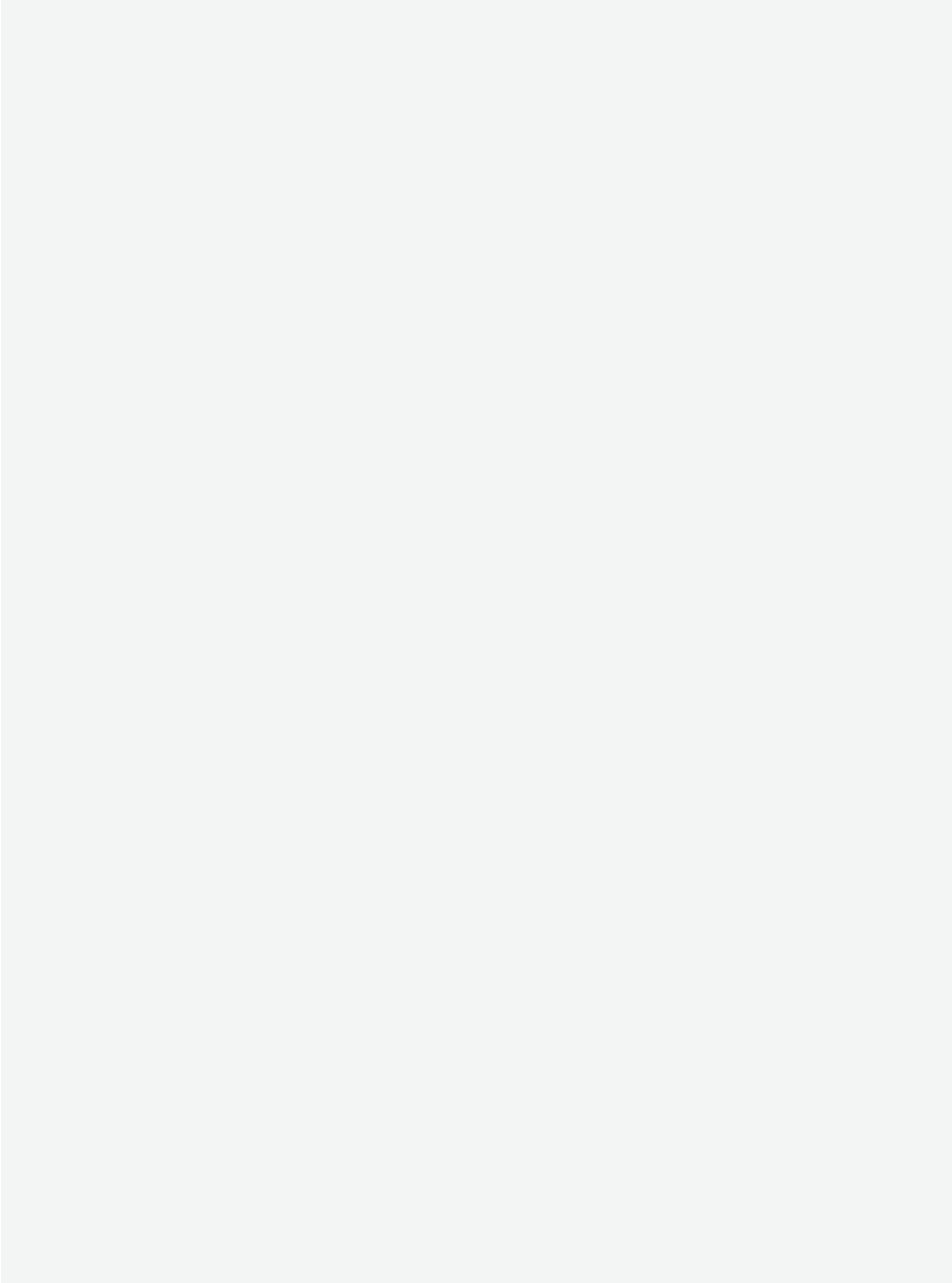
### Safety system type F-Stop GWG-FSS-DEV

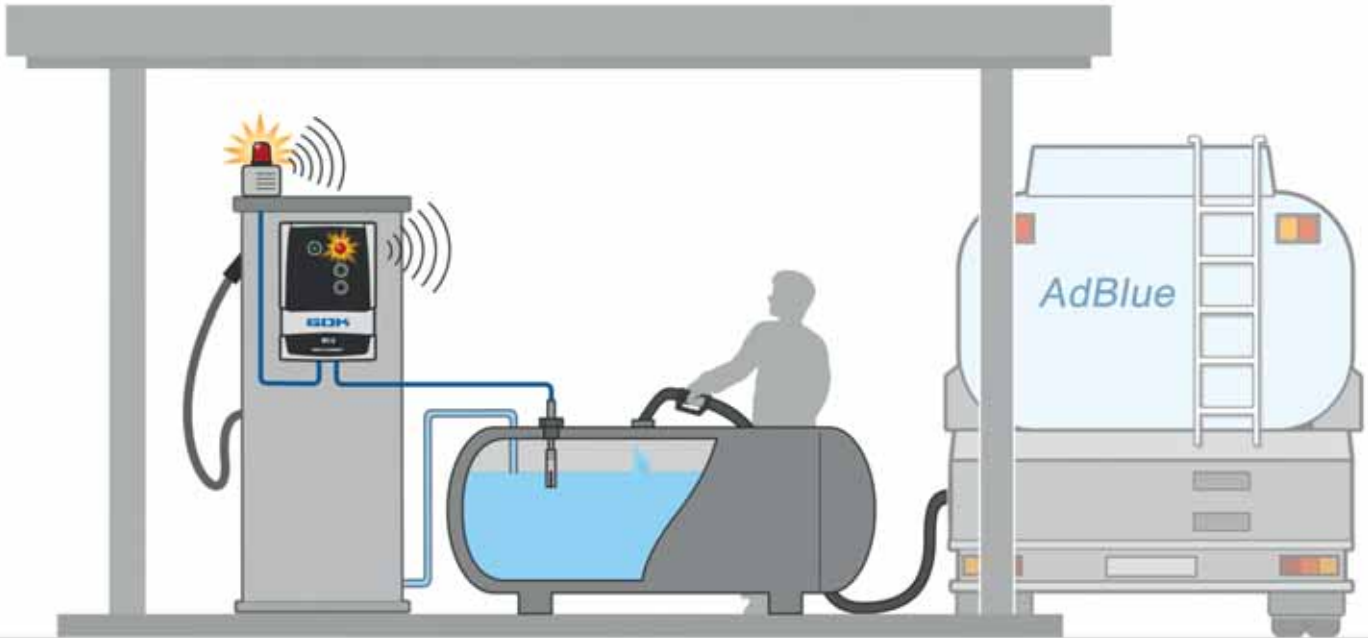
The safety systems type F-Stop GWG-FSS and GWG-DEV can be combined and jointly, securely and reliably meet the requirements of a safety device for the prevention of overpressure and overfilling. With the safety system type F-Stop GWG-DEV (refer to part no. 16 600 10) and the number of extension units of the safety system type F-Stop GWG-FSS (refer to part no. 16 602 00), a battery tank can be fully equipped with one limit indicator.



safety system  
type F-Stop GWG-DEV







(Fig. 1)

**Overfill prevention device type BC-2**

The overfill prevention device type BC-2 monitors the filling process of tanks with liquid media as an alarm system.

**Application example of manuel refuelling: (Fig. 1)**

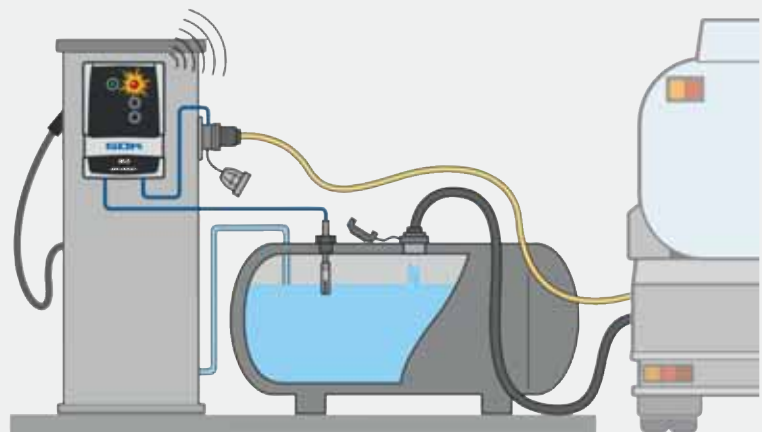
The tank truck driver fills an AdBlue tank system using a fuel nozzle.

As soon as the urea solution (AdBlue) has reached the sensor on the overfill prevention device, a visual and acoustic alarm is triggered. The tank truck driver stops the filling operation manually. Via two free relay contacts, the operator is able to control an external warning light or an additional acoustic alarm.

**Application example of refuelling with automatic tripping: (Fig. 2)**

In this case, the tank truck driver fills an AdBlue tank system through its filling adapter (filling hole plug). In this respect, the coupling socket of the overfill prevention (AS) of the road tanker must be plugged into the adapter BC-1/BC-2 – AS.

As soon as the urea solution (AdBlue) has reached the sensor on the overfill prevention device, the further filling is stopped by the overfill prevention (controller). A visual and acoustic alarm is triggered on the BC-2 overfill prevention device.



(Fig. 2)

## Safety and monitoring

**NEW**



### Overfill prevention device type BC-2

Part no.

Safety device for monitoring tanks with liquid operating media as an alarm system during the filling process or as a limiter for oil operation tanks

consisting of: display unit and probe with cable

Operating media:

Waste oil, diesel, FAME, liquid fertiliser, urea solution (AdBlue), fuel oil, fuel oil bio, industrial oil, liquid manure/slurry/silage leachate, oil/water mixture and vegetable oil

Advantages and equipment

- issuing of a visual and acoustic alarm if the sensor of the probe is in contact with the medium in a tank
- acknowledgement button for the acoustic alarm
- test key to test that the overfill prevention device is working correctly
- connection option for an external test key and an external acknowledgement button
- potential-free changeover contacts:
  - alarm 1: permanently switched in case of an alarm, e.g. to connect external warning lights
  - alarm 2: like alarm 1, but can be acknowledged, e.g. for connection of an external acoustic signal generator

Conformity

- general building approval
- CE marking according to EMV, LVD and RoHS
- Belgium: VINCOTTE
- Switzerland: SVTI certificate

Technical data

- supply voltage: 230 V AC 50 Hz
- connection tank: G 1 M
- probe tube diameter: 10 mm
- sensor: metal-encapsulated PTC
- materials:
  - probe tube: stainless steel
  - screw-in unit: ABS, PA
  - sensor cover: stainless steel
- temperature range:
  - operating medium: -20°C to +60°C
  - environment: -20°C to +60°C

Overfill prevention device type BC-2

display unit for indoors or weather-protected outdoor areas, IP54

Probe length 250 mm, length of cable 4.7 m, connection G 1 M

15 707 00

Spare Part

display unit for indoors or weather-protected outdoor areas, IP54

15 704 00

probe, probe length 250 mm, length of cable 4.7 m, connection G 1 M

15 701 00

probe, probe length 360 mm, length of cable 4.6 m, connection G 1 M

15 701 02

probe, probe length 500 mm, length of cable 4.5 m, connection G 1 M

15 701 04

probe, probe length 700 mm, length of cable 4.3 m, connection G 1 M

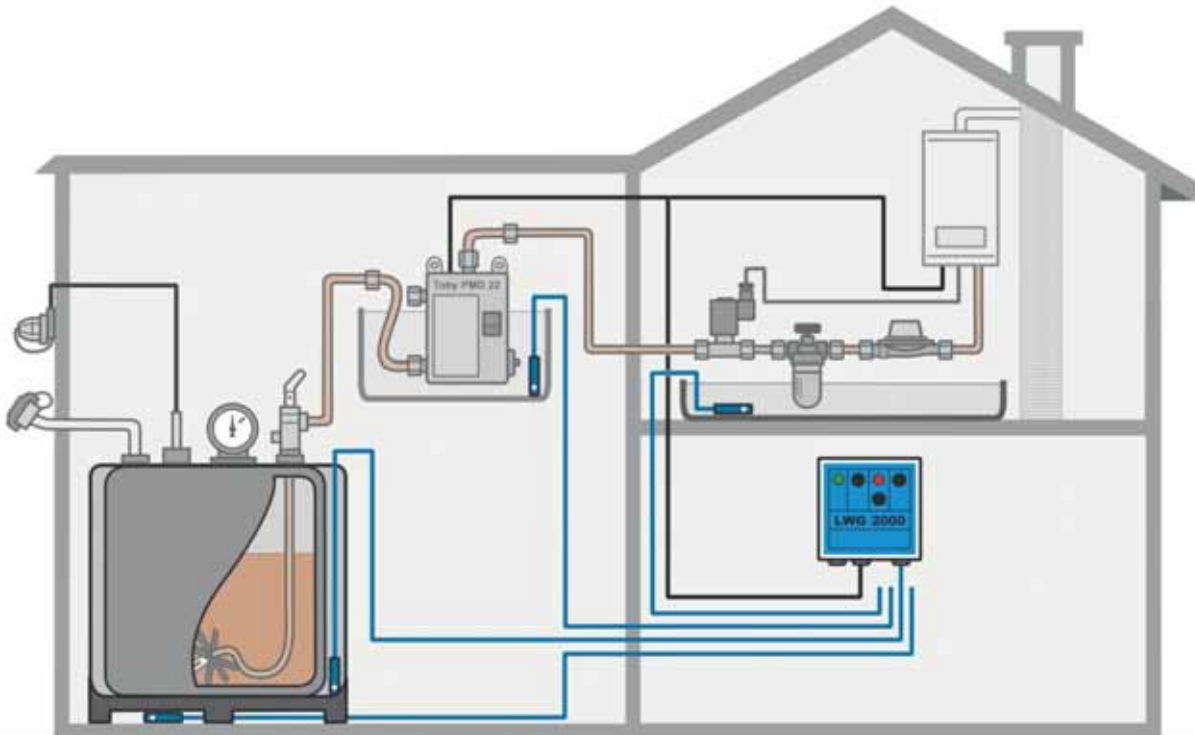
15 701 06

Accessories

adapter BC-1/BC-2 - AS, connection of overfill prevention device type BC-1 or BC-2 to road tanker for the shut-down of the filling process

15 706 30

Other probe and cable lengths available on request.



**Leak alarm type LWG 2000**

The leak alarm type LWG 2000 monitors systems for the storage, filling and handling of water-endangering substances and reliably reports any leaks that arise. As soon as a liquid touches the probe of the leak alarm, a visual and acoustic alarm is triggered.

**Application example:**

The monitoring of four possible containment facilities of an oil firing installation using a liquid sensor as a probe:

- in a tank with an integrated containment basin
- in the containment basin of an oil feed pump
- in the containment basin of consumer equipment because of the pressure line
- on the floor of the installation room to monitor flooding or to monitor the containment facility for leaking fuel in a hidden area

A leak alarm type LWG 2000 is required for each monitoring process.

## Safety and monitoring



### Leak alarm type LWG 2000

Part no.

Leak detection system as:

- class III liquid sensor system in leak and monitoring areas according to EN 13160-1 with EN 13160-4
- safety device leakage detection system

For use as:

- construction product as part of systems for the storage, filling and handling of water-endangering substances
- liquid sensor for use in facilities for the storage of fuels with a flash point of over +55°C which are intended for the supplying of heating systems in buildings
- for the monitoring of a tank, piping or a containment facility
- as a self-actuating fault alarm device according to German worksheet DWA-A 779

Operating media:

Waste oil, diesel, FAME, liquid fertiliser, urea solution (AdBlue), fuel oil, fuel oil bio, industrial oil, liquid manure/slurry/silage leachate, oil/water mixture, vegetable oil, water and water-based solutions of inorganic, non-oxidising salts with a pH-value of between 6 and 8

Advantages and equipment

- potential-free relay contact to connect a burner pump, warning light or acoustic signal generator, for example

Conformity

- general type approval no. Z-65.40-357
- CE marking according to EU CPR: declaration of performance according to EN 13160-1
- CE marking according to EMV, LVD and RoHS
- Belgium: 97/H019 PLD 2015/12/02
- Switzerland: SVTI certificate with KVV no. 321.016

Technical data

- supply voltage: 230 V AC 50 to 60 Hz
- power consumption: 2.5 VA
- sensor: metal-encapsulated PTC
- temperature range: -20°C to +60°C
- protection type: IP30

Note

- The connection cable can be extended to a maximum of 100 m!

**Leak alarm type LWG 2000**

with display unit, probe (2 m probe length) and assembly set

15 073 00

**Spare Part**

display unit for leak alarm type LWG 2000

15 073 01

probe without assembly set, probe length 2 m

15 073 98

probe without assembly set, probe length 5 m

15 073 92

probe without assembly set, probe length 20 m

15 073 19

assembly set to mount the probe

15 073 97

Probe for assembly in tanks with integrated containment facility, probe length can be adjusted between 930-1388 mm, connection cable 3.6 m

15 073 90

Additional products for other target markets are available on request.

## Safety and monitoring



Cable connection fitting	Part no.
<p>for the extension of 2-wire network or signal cables</p> <p><b>Advantages and equipment</b></p> <ul style="list-style-type: none"> <li>• for leak detectors as a transducer cable for type LAG 2000 A</li> <li>• for limit indicator as a connection cable for type GWD</li> <li>• Equipment protection level EPL “Gb” for group IIB gases</li> </ul> <p><b>Cable connection fitting</b></p> <p>2-wire, protection type: IP54, up to 4.0 mm<sup>2</sup></p>	15 379 00

## Safety and monitoring



### Leak protection system type AS-2

Part no.

class III leak detection system according to EN 13160-1 and EN 13160-4 as a liquid sensor system in leakage and/or monitoring rooms, as safety device or leak detection system for:

- containment facilities of oil feed pumps
- liquid-tight protective pipes of piping and conduits

Operating media:

Diesel, FAME, fuel oil, fuel oil bio, industrial oil, oil/water mixtures and water (+1°C to +70°C)

#### Advantages and equipment

- compact display unit with plug
- green LED shows that the device is ready to operate
- connected probe, length of cable: 2 m
- visual and acoustic alarm through red LED and buzzer
- integrated socket for automatic shut-down if the alarm is given, e.g. with oil feed pumps
- including mounting material for probe
- no susceptibility to failure due to pollution or change of light incidence on the probe sensor
- only once the leak has been eliminated does the alarm end and the connected device can then be started up again

#### Conformity

- general type approval no. Z-65.40-394
- CE marking according to EMV, LVD and RoHS

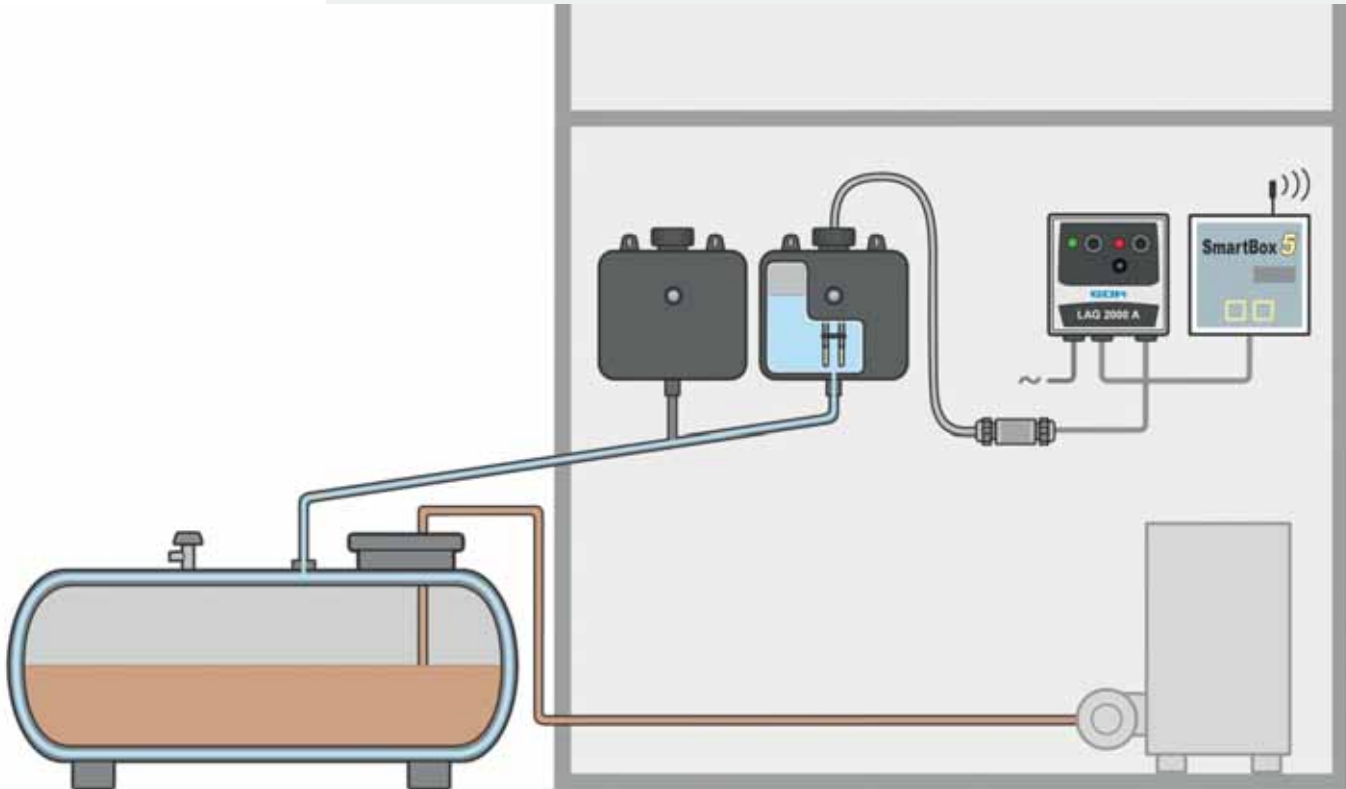
#### Technical data

- supply voltage: 230 V AC 50 to 60 Hz
- power consumption: 2.5 VA (without consumer equipment connected)
- switching power: maximum 1800 VA
- switching voltage: 250 V AC
- switching current: 8 A
- display unit material: ABS/PC
- dimensions of display unit H/W/D: 121 x 66 x 56 mm
- sensor: metal-encapsulated PTC
- temperature range:
  - operating medium: -20°C to +50°C
  - environment: -20°C to +60°C
- protection type: IP20
- protection class: I according to EN 60730-1

#### Leak protection system type AS-2

complete

15 173 00



(Fig. 1)

**Leak detector type LAG 2000 A**

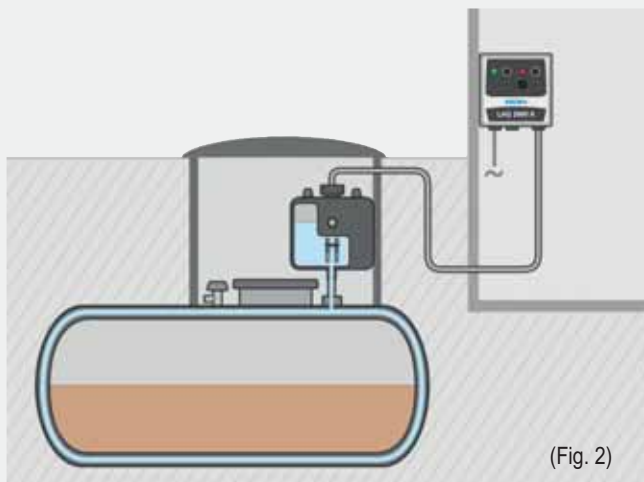
The leak detector type LAG 2000 A monitors double-walled tanks which are filled with a leak detector liquid in the monitoring space. As soon as a leakage occurs, the leak detector liquid escapes from the monitoring space and a visual and acoustic alarm is activated.

**Application example outside the EX protection zone: (Fig. 1)**

The LAG 2000 A monitors an above-ground double-walled tank. In addition to the leak detector liquid container with a transmitter, a second container without transmitter is required, as the type label of the tank specifies 200 litres for the volume of the leak detector liquid, and the ratio of monitoring space volume to usable volume of the container requires it. The data transmission system SmartBox 5 is also connected. A leak that arises can then be notified.

**Application example inside the EX protection zone: (Fig. 2)**

The LAG 2000 A monitors an underground double-walled tank. The leak detector liquid container is fitted in the dome within the EX protection zone. The display unit must be installed outside the EX protection zone.



(Fig. 2)



## Safety and monitoring



### Leak detector

Part no.

is part of a leak detection system in the form of a liquid system for double-walled tanks for the storage, filling and handling of water-endangering liquids. Leaks in the monitoring space of a tank are detected when the level of the leak detector liquid falls.

consisting of: Display unit, leak detector liquid container and sensor unit with sensor cable

Operating media:

Bioethanol, diesel, FAME, aviation fuel, liquid fertiliser, urea solution (AdBlue), fuel oil, fuel oil bio, HVO, kerosene, petrol, vegetable oil, special petrol and water

For use as:

- class II leak detection system according to EN 13160-1:2003 in connection with EN 13160-3 in the form of a liquid system for tanks on the basis of leak detector liquid.
- leak detector for equipment and protection systems for intended use in areas where there is a risk of explosion according to the ATEX directive.
- Construction product for stationary systems used for the storage, filling and handling of water-endangering substances pursuant to German MVV TB: leak detectors for liquid systems for the storage of water-endangering liquids.
- construction product and part of systems for the storage, filling and handling of water-endangering substances in Germany according to the sample administrative provision for technical building regulations (MVV TB).
- for monitoring double-walled, non-pressurised, above-ground and underground tanks, e.g. according to DIN 6608-2, DIN 6616, DIN 6618-3, DIN 6619-2, DIN 6623-2, DIN 6624-2, EN 12285-1, EN 12285-2, EN 12285-3, NBN I 03-004
- for use in Germany:
  - use solely for above-ground tanks.
  - volume of the monitoring space of the system must not exceed 1 m<sup>3</sup>. the leak detector liquid may not exceed water hazard class (WHC) 1.
  - for type LAG 2000 A leak detectors in operation in systems which were constructed before 31/12/2002, the restriction for the volume of the monitoring space of the system of max. 1 m<sup>3</sup> does not apply.

### Advantages and equipment

- visual and acoustic leak indicator
- potential-free relay contact with connection of, for example, a burner pump, warning light or F-Stop GWG-LWG

### Conformity

- CE marking according to EU CPR: declaration of performance according to EN 13160-1
- CE marking according to EMV, LVD and RoHS
- CE marking according to ATEX: EC-type examination certificate no.:
  - display unit: EPS 16 ATEX 1171
  - leak detector liquid container with transmitter: EPS 16 ATEX 1172 U
- ÜHP according to German MVV TB C 2.15.25 appendix C 2.15.16 (with EN 13160-1 / EN 13160-3)
- Belgium: 97/H019 PLD 2015/12/01

### Technical data

- supply voltage: 230 V AC 50 to 60 Hz
- power consumption: 3.6 W
- temperature range:
  - display unit: -5°C to +50°C
  - leak detector liquid container with sensor unit: -20°C to +60°C
- protection type: IP20
- marking according to ATEX:
  - display unit: Ex II (1) G [Ex ia] IIC
  - leak detector liquid container: Ex II 1G Ex ia IIC Ga
- leak detector liquid container: volume: 4.5 l, connection: G 3/4

## Safety and monitoring



### Leak detector

Part no.

Leak detector  
Type LAG 2000 A  
(assembly of the display unit outside of EX protection zones)  
complete

15 072 59

#### Installation set for leak detector

to connect with a leak detector liquid container  
consisting of: Cable connection fitting equipment protection level EPL "Gb"  
for group IIC gases, test valve, pipe socket and EPDM hose

15 072 99

#### Spare Part

display unit - can also be used as an additional alarm unit

15 072 01

spare sensor unit, length of cable 1.0 m

15 071 32

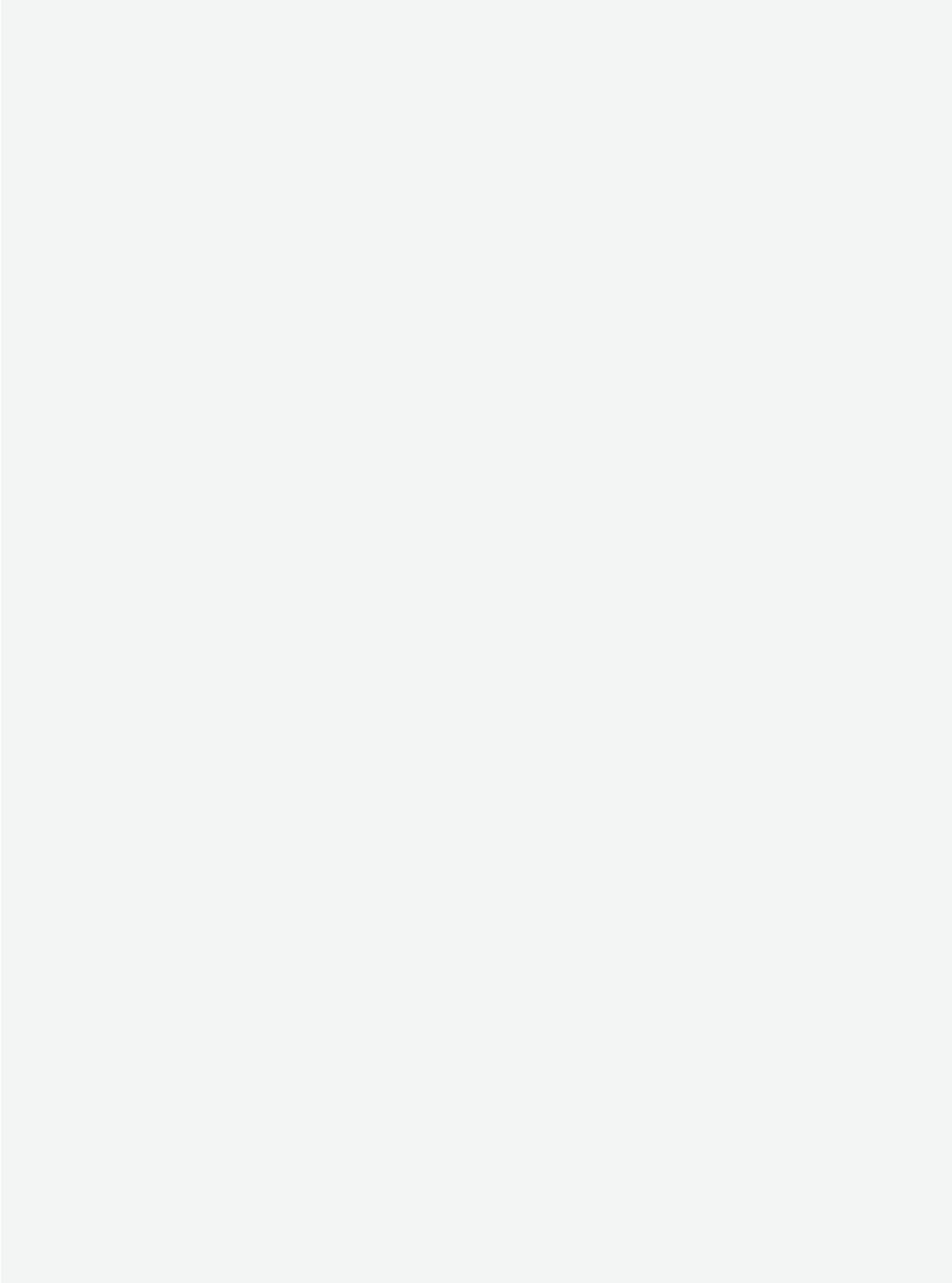
leak detector liquid container for type LAG 2000 A with sensor unit

15 072 47

Leak detector liquid container for type LAG 2000 A without sensor unit,  
in the form of an additional container

15 072 46

Additional products for other target markets are available on request.



## Safety and monitoring



### Vacuum leak detector type Vakumatik

Part no.

is part of a leak detection system in the form of a vacuum system for double-walled tanks for the storage, filling and handling of water-endangering liquids. Leaks are detected when the pre-set vacuum in the monitoring space falls.

consisting of: display unit

Operating media:

Diesel, FAME, urea solution (AdBlue), fuel oil, industrial oil, liquids with a flash point above +55°C and other materials according to substance list

For use as:

- class I leak detection system according to EN 13160-1 in connection with EN 13160-2 as a vacuum system for use in facilities for the storage of fuels with a flash point above +55°C which are intended for the supplying of heating systems in buildings
- construction product for stationary systems used for the storage, filling and handling of water-endangering substances according to German MVV TB: leak detectors for overpressure and vacuum systems

Type Vakumatik IIIF R325 - High pressure option for monitoring:

- double-walled tanks according to DIN 6608-2, DIN 6616 (form A), DIN 6618-2, DIN 6618-4, DIN 6619-2, DIN 6623-2, DIN 6624-2, EN 12285-1, EN 12285-2
- double-walled tanks whose monitoring space remains partially filled with leak detector liquid
- single-wall tanks according to DIN 6608, DIN 6616 (form A), DIN 6619, DIN 6624-2 or DIN 6625 with leak protection lining
- single and double-walled tanks with general type approval

Type Vakumatik IVF R34 - Low pressure option for monitoring:

- single-wall tanks according to DIN 6608, DIN 6616 (form A), DIN 6619, DIN 6623, DIN 6624-2, DIN 6625, EN 12285-2 with leak protection lining
- single and double-walled tanks with general type approval

Advantages and equipment

- visual and acoustic leak indicator
- connection for external alarm max. 2 A

Conformity

- CE marking according to EU CPR: declaration of performance according to EN 13160-1
- CE marking according to EMC, MD and RoHS
- ÜHP according to German MVV TB appendix C 2.15.15

Technical data

- supply voltage: 230 V AC 50 Hz
- power consumption: 0.5 A
- temperature range: -5°C to +50°C
- protection type: IP30

Note

- maximum tank diameter: 2.9 m
- according to EN 13160-2, the inside diameter of the hose assemblies between the display unit and monitoring space must total a minimum of
  - ID 6 mm for leak detection system that uses air
  - ID 4 mm for leak detection system that uses inert gas

Vacuum leak detector

Type Vakumatik IIIF R325

high pressure option

15 400 00

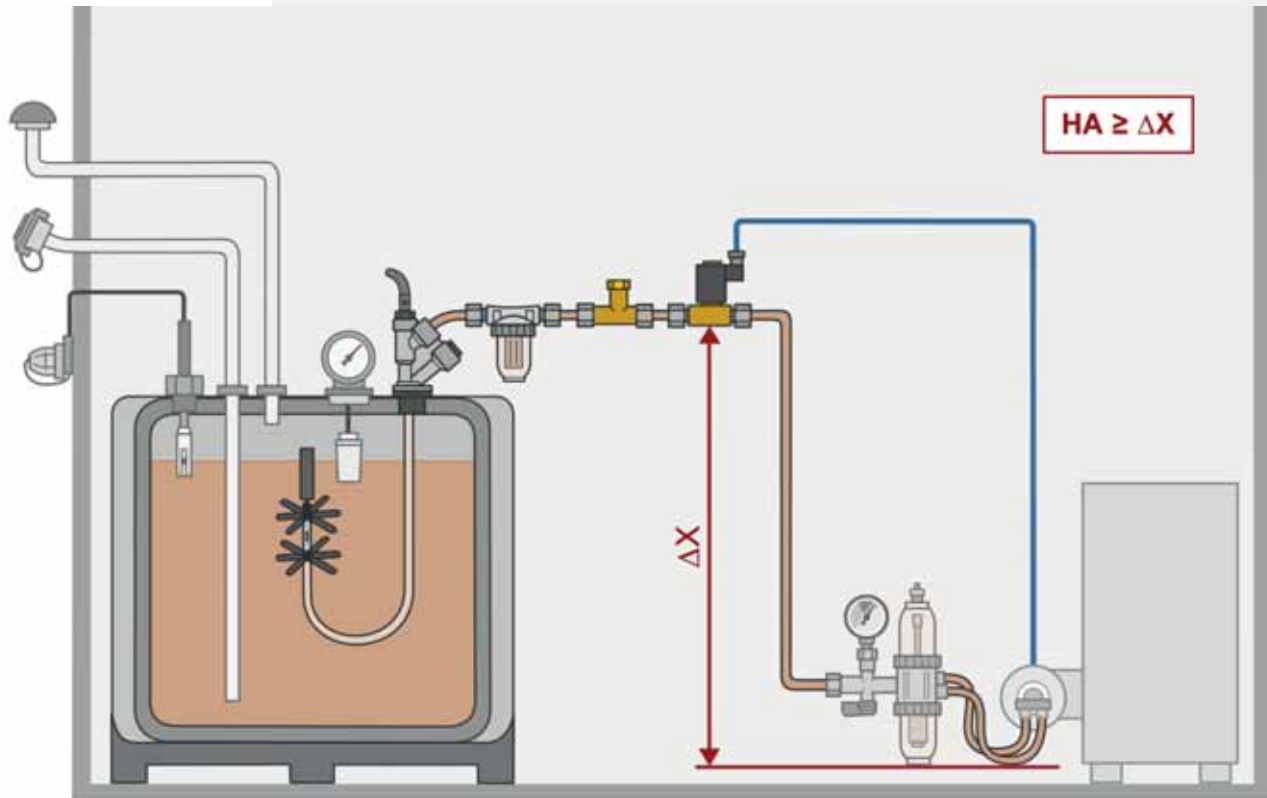
Type Vakumatik IVF R34

low pressure option

15 401 00

## Safety and monitoring

Vacuum leak detector type Vakumatik	Part no.
<b>Spare Part</b>	
replacement lamp red	15 402 24
replacement lamp green	15 402 25
replacement lamp yellow	15 402 27
replacement vacuum pump for type Vakumatik IIIF R325	15 400 10
replacement vacuum pump for type Vakumatik IVF R34	15 401 10
<b>Accessories</b>	
condensate vessel 1-fold for hose 4 x 2 mm and assembly at the low point	15 402 28
hose assembly red ID 4 x 2 mm for measuring line	15 402 15
hose assembly green ID 4 x 2 mm for exhaust pipe	15 402 14
hose assembly transparent ID 4 x 2 mm for suction line	15 402 13
hose assembly red ID 6 x 2 mm for measuring line	15 402 35
hose assembly green ID 6 x 2 mm for exhaust pipe	15 402 34
hose assembly transparent ID 6 x 2 mm for suction line	15 402 33
liquid stop valve without condensate vessel	15 402 26
Liquid stop valve with condensate vessel (with installation of leak protection lining)	15 402 12
assembly set for tank connector components	15 402 10



### Solenoid valve anti-siphon device type HS-MV

The solenoid valve anti-siphon device type HS-MV prevents the complete emptying of the fuel oil tank in the event of leaks in fuel oil consumer installations.

#### Application example:

The solenoid valve anti-siphon device type HS-MV is electrically controlled by the consumption device and is current-free in the closed state.

A possible double-sided blockage between the tank withdrawal fitting and the anti-siphon device is prevented by the pressure compensation valve type DAV7.

A pre-filter must be fitted upstream of the solenoid valve anti-siphon device so that possible contamination does not impede the valve seat and therefore the operations.

## Safety and monitoring



### Solenoid valve anti-siphon device type HS-MV

Part no.

safety device to prevent siphoning according to DIN 4755, TRÖI, AwSV, DWA-A 779 and DWA-A 791 in Germany

#### Advantages and equipment

- safety device to prevent overpressure, integrated as pressure relief between the anti-siphon device and burner for all safety heights for the purpose of pressure compensation between the anti-siphon device and burner
- no minimum suction pressure necessary
- normally closed
- device plug according to EN 175301-803, protection type IP65

#### Conformity

- general type approval no. Z-65.50-450
- CE marking according to EMC, LVD, PED, MD and RoHS

#### Technical data

- maximum admissible pressure: PS 12 bar
- supply voltage: 230 V AC 50 Hz
- power consumption: 13.5 VA
- valve parameter standard capacity:  $k_v = 9$  l/min with a lasting pressure loss of 50 mbar corresponds to a flow rate of 130 l/h
- for cylindrical screw-in compression fittings type GERB according to EN ISO 1179-4 form B, for sealing with the FKM O-ring provided

#### Note

- maximum height  $\Delta X$  according to general type approval: 3.5 m
- A pre-filter, e.g. part no. 13 049 00 type 500EZ, is to be provided!

### Solenoid valve anti-siphon device type HS-MV

G 3/8 F x G 3/8 F DN 5

13 211 00

### Spare Part

solenoid coil for type HS-MV 230 V AC 50 Hz - 13.5 VA

13 211 10



### Solenoid valve anti-siphon device - connection set

Part no.

for connection of the solenoid valve anti-siphon device and the burner

consisting of: solenoid valve anti-siphon device, 7-pole burner plug (male), 7-pole boiler plug (female) and 4 m cable

#### Advantages and equipment

- safety function: upon notification of a burner malfunction, the solenoid valve anti-siphon device goes to the normally closed position

#### Technical data

- supply voltage: 230 V AC 50 Hz
- power consumption: 13.5 VA
- for cylindrical screw-in compression fittings type GERB according to EN ISO 1179-4 form B, for sealing with the FKM O-ring provided

#### Note

- maximum height  $\Delta X$  according to general type approval: 3.5 m
- A pre-filter, e.g. part no. 13 049 00 type 500EZ, is to be provided!

### Solenoid valve anti-siphon device - connection set

fully assembled

13 212 00



**Limit indicator test device type F-Stop GWG-PG 1**

With the limit indicator test device, safety devices, such as limit indicators or F-Stop GWG-FSS, can be tested for their proper functioning. The test device can only be used for tanks in which non-inflammable fuels are stored.

**Application example:**

A service technician from a certified company carries out the functional check of the limit indicator during the running operation of the oil firing installation. This ensures that the limit indicator is working and that the tank will not be overfilled during the next filling operation.

The testing of the reaction time according to EN 13616 – the so-called dry/wet test – can be carried out easily with the test device if the limit indicator is removed from the tank accordingly.

**Notice:**

Limit indicators are safety devices, so they have to be tested at least every 10 years for their correct functioning. This function check also includes a test of the deactivation and the reaction time ( $\leq 1.5$  s) through immersion in liquid. The check is to be carried out using a suitable test device. The check is to be documented.



## Test equipment and auxiliaries



### Limit indicator test device type F-Stop GWG-PG 1

Part no.

for the comprehensive function check of the safety devices limit indicators (type B1 sensors) according to EN 13616 (in Germany, to date TRbF 511) and limit indicators with filling level limiter(s), e.g. F-Stoptype GWG-FSS, which are installed in tanks with non-inflammable fuels with a flash point of over +55°C; for example, fuel oil

**Displayed functions:**

- charging level of the 3 installed batteries
- heating of the limit indicator
- short circuit
- interruption
- approval
- reaction time

**Advantages and equipment**

- single button operation
- microprocessor-controlled operating unit
- LED display
- Display of the reaction time of the limit indicator from the status "Filling allowed" to the status "Filling not allowed": ≤ 1.0 s; ≤ 1.1 s; ≤ 1.2 s; ≤ 1.3 s; ≤ 1.5 s and > 1.5 s with completed dry/wet test of the limit indicator sensor
- coupling socket suitable for all limit indicator connectors
- includes battery charger
- includes carrying case

**Conformity**

- CE marking according to EMC and RoHS

**Technical data**

- test circuit:  $U_g = (19 \pm 0.3) \text{ V}$ ;  $R_i = (160 \pm 3.2) \Omega$
- length of cable: 1.2 m
- battery charger: inlet: 230 V AC  
output: 12 V; 6 W

**Note**

- In the event of a reaction time > 1.5 s, the limit indicator must be replaced.
- For function test adapter, refer to part no. 15 097 60.

Limit indicator test device type F-Stop GWG-PG 1 complete

15 097 00

Accessories  
car charging cable

15 097 10



### Limit indicator test device type TG-1

Part no.

for the functional check of limit indicators, for example, before each filling of the tank and final testing after the construction of an oil firing installation

**Displayed functions:**

- heating of the limit indicator
- approval
- short circuit
- charging level of installed batteries
- interruption

**Advantages and equipment**

- includes carrying case
- includes 2 x 9 V block batteries

**Note**

- For function test adapter, refer to part no. 15 097 60.

Limit indicator test device type TG-1 complete

15 098 00

## Test equipment and auxiliaries



Function test adapter for limit indicator test equipment and test device	Part no.
<p>For testing the flawless functioning of</p> <ul style="list-style-type: none"> <li>• GOK limit indicator test device type F-Stop GWG-PG 1 and</li> <li>• GOK limit indicator test device type TG-1</li> </ul> <p>in the scope of test equipment monitoring</p> <p>Function:</p> <p>The function test adapter is plugged into the coupling socket of limit indicator test equipment or test devices. The test equipment must then be activated. With the approval display on the limit indicator test equipment or test device, the requirements of the test equipment are fulfilled.</p> <p><b>Advantages and equipment</b></p> <ul style="list-style-type: none"> <li>• connector for limit indicator as limit indicator fitting for wall assembly (grey plastic type 905), which is also equipped with a button and internal electrical components</li> </ul> <p>Function test adapter for limit indicator test equipment and test device complete</p>	15 097 60

## Test equipment and auxiliaries



### Digital pressure gauge type VDM 300 R

Part no.

for checking the switching values on class I leak detectors and the measurement of vacuum and overpressure during leak-tightness or pressure testing of piping

consisting of: test and measuring device VDM 300 R with carrying loop, approx. 300 mm test hose, 9 V block battery and plastic case

#### Advantages and equipment

- display: 2 4-digit LC displays
- power-off function: the equipment turns off automatically after a set switch-off delay
- controls: 6 membrane keys
- the measured values can be displayed as:  
bar, mbar, Pa, kPa, MPa, mm mercury, psi, m water column
- to measure, depending on the pressure conditions (overpressure/vacuum), place a suitable hose on the corresponding hose nozzle (+ = overpressure or - = vacuum) and connect the other end of the hose to the measuring port

#### Conformity

- CE marking according to EMC and RoHS

#### Technical data

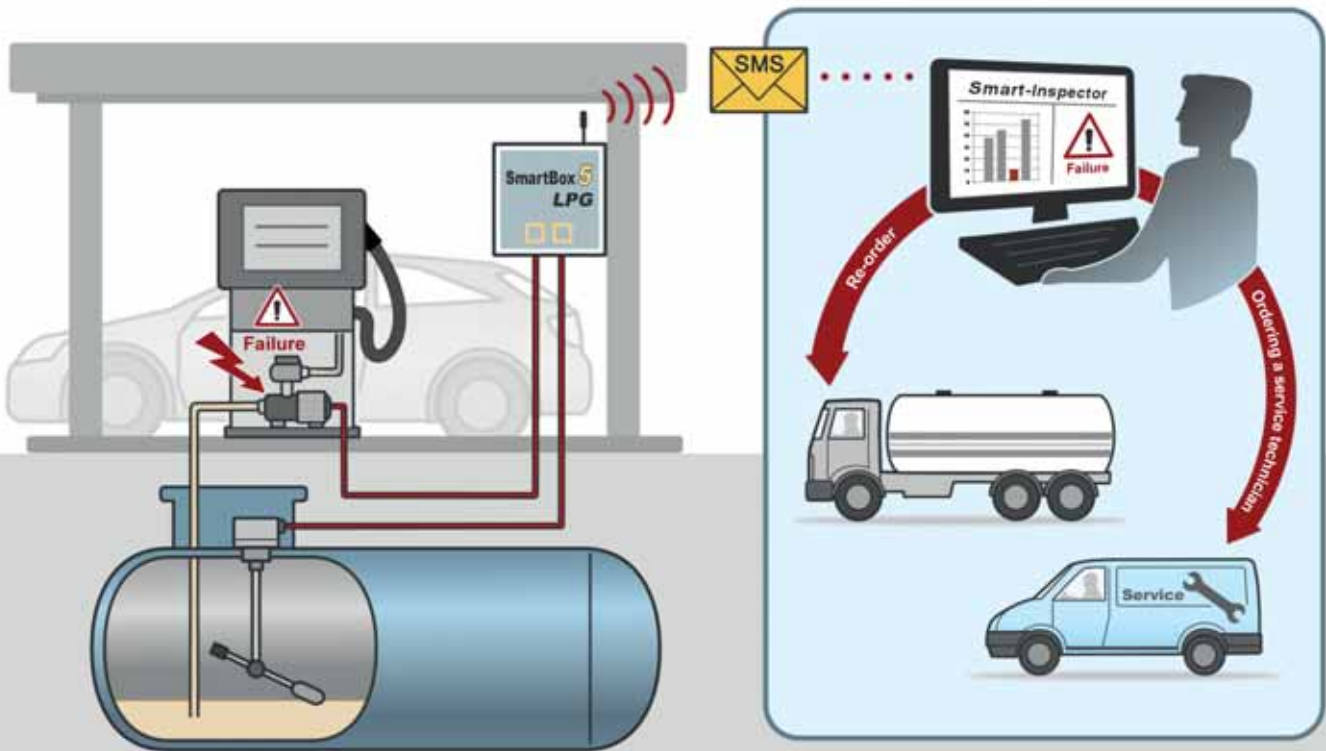
- measurement range: -1000 to 2000 mbar (vacuum / overpressure)
- pressure resistance: max. 4 bar
- measuring media: air, non-corrosive gases and liquids
- resolution: 1 mbar
- measuring accuracy:  $\pm 0.2\%$  FS (hysteresis and linearity)  $\pm 0.4\%$  FS (temperature effect of 0°C to +50°C)
- sensor: piezoresistive relative pressure sensor
- connection: 2 metal tube nozzles made of nickel-plated brass to the connection of a pressure hose  $\varnothing 6 \times 1$  mm
- protection type: IP65
- ambient temperature: -20°C to +50°C
- serial interface for a galvanically isolated interface converter GRS3100, GRS3105 or USB3100 (accessories on request)
- power supply unit (1.9 mm diameter of internal pin)

#### Digital pressure gauge type VDM 300 R

complete

15 403 00

Level indication



(Fig. 1)

**SmartBox 5 LPG PRO**

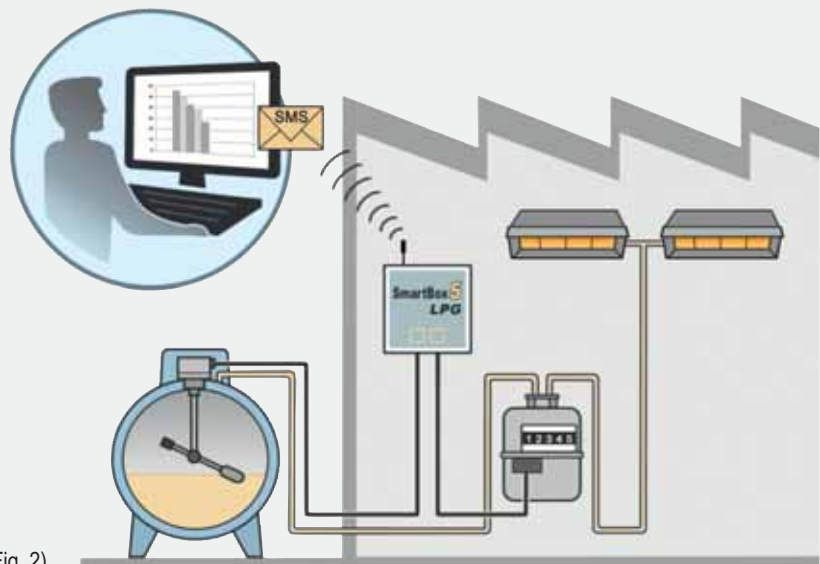
**Application examples:**

**Figure 1:**

The SmartBox 5 LPG PRO monitors the filling level, which is sent to the Smart-Inspector Internet database by text message. The SmartBox 5 LPG PRO can also notify the service technician by text message of a malfunction at the filling station pump, for example.

**Figure 2:**

The SmartBox 5 LPG PRO monitors the filling level and sends the data of a gas meter by text message.



(Fig. 2)

## Level indication



### SmartBox 5 LPG PRO

Part no.

is a remote monitoring system for up to two LPG tanks

It measures filling levels and forwards this information via text message. It is also possible for two events, such as a meter reading or a system malfunction, to be monitored remotely.

consisting of: data transmitter with integrated explosion-proof barrier and a tank probe S for assembly on the mechanical level gauge

Function:

- remote transmission of tank content and data as well as of events, such as system malfunction, remote meter reading
- Monitoring of the tank content on site through continuous display on the LPG tank by means of a 2-digit display on the tank probe in % (V/V)

The data is communicated:

- from the SmartBox 5 LPG to a mobile phone by text message or by email, depending on the provider
- from the SmartBox 5 LPG to the Internet database [www.smart-inspector.com](http://www.smart-inspector.com) for the full monitoring of the system.
- between the mechanical level gauge and tank probe S by means of an electro-magnetic pick-up
- between tank probe S and SmartBox 5 LPG by means of an electrical signal

Required for operation:

It is possible to choose between a prepaid card and a SIM card contract.

With a prepaid card, you must always check that sufficient credit is available. The SIM card is not included in the scope of delivery!

Technical data

- inputs:
  - SmartBox 5 LPG: 2 inputs for tank probe S as well as 2 inputs for events, e.g. gas meter
- supply voltage:
  - SmartBox 5 LPG: 230 V AC 50 Hz
  - tank probe S: intrinsically safe:  $U_i = 15 \text{ V}$ ;  $I_i = 200 \text{ mA}$ ;  $P_i = 500 \text{ mW}$
- temperature range:
  - SmartBox 5 LPG:  $0^\circ\text{C}$  to  $+50^\circ\text{C}$
  - tank probe S:  $-40^\circ\text{C}$  to  $+60^\circ\text{C}$
- type of protection housing:
  - SmartBox 5 LPG: IP30 for assembly in dry areas
  - tank probe S: IP68
- connection cable:
  - tank probe S: with 6 m connection cable  $3 \times 1.5 \text{ mm}^2$ , the connection cable can be extended to a maximum of 180 m
- content display:
  - SmartBox 5 LPG: none
  - tank probe S: 2-digit LC display

SmartBox 5 LPG PRO for:

level gauge Rochester Junior and SRG 487 (from year of manufacture 02/1996)	28 701 00
level gauge Rochester Senior	28 702 00
level gauge Rochester Magnetel, WITT and FAS	28 704 00
level gauge SRG SR 705 (before year of manufacture 02/1996)	28 703 00

## Level indication

SmartBox 5 LPG PRO	Part no.
<b>Accessories</b>	
data transmitter SmartBox 5 LPG	28 570 00
additional antenna for SmartBox 4 and SmartBox 5	28 858 00
junction box IP66 for tank probe S	28 869 00
tank probe S for Rochester Junior and SRG 487 (from year of manufacture 02/1996)	53 190 02
tank probe S for Rochester Senior	53 193 02
tank probe S for Rochester Magnetel, WITT and FAS	53 197 02
tank probe S for SRG SR 705 (before year of manufacture 02/1996)	53 195 02
annual costs of system hosting, administration, backup and preparation of tank data - www.smart-inspector.com	58 703 00
<p>Internet database Smart Inspector (<a href="http://www.smart-inspector.com">www.smart-inspector.com</a>):            The invoicing of user fees for the system hosting, administration, safeguarding and processing of tank data is completed by a third-party provider.            A registration form is enclosed with the appropriate products. Special solutions for the EX protection zone and/or temperature measurement, or other tank heights, media or service tanks available on request.</p>	

## Accessories



Reducer	Part no.
for reducing the threaded connection of a sleeve on the tank	
Reducer	
material: PA	
G 1 1/2 M x G 1 F	15 230 20
G 2 M x G 1 1/2 F	15 289 20
material: POM	
G 2 M x G 1 F	15 238 00

## Notice about standards and marking

### Technical Rule DWA-A 791

The DWA – German Association for Water, Waste Water and Waste – has published the Technical Rules for water-endangering substances (TRwS) for fuel oil consumer installations in the form of:

- DWA-A 791-1 worksheet – Part 1: The construction, operational requirements and decommissioning of fuel oil consumer installations and
- DWA-A 791-2 worksheet – Part 2: The requirements of existing fuel oil consumer installations.

In autumn 2019, the draft of worksheet DWA-A 791 Fuel oil consumer installations was published.



The **DWA-A 791 worksheets** are a generally recognised technical regulation in terms of the water legislation according to the AwSV with § 62, Paragraph 2 of the German Water Resources Act (WHG). Numerous technical and operational requirements regarding oil firing installations have been specified or rearranged, and comply with the amended version of the AwSV which has applied since 01/08/2017.

In terms of product descriptions and the illustrated applications, the picture price list applies the important and relevant requirements of the DWA-A 791 worksheets. This provides useful information for specialist companies, experts and the operator.

### Areas prone to flooding and risk areas

The DWA-A 791-1 worksheet sets out the requirements regarding leak-tightness towards water pressure from external sources for products for oil firing installations in areas prone to flooding and risk areas. Our data sheet on areas prone to flooding and risk areas provides information on which products are suitable and the appropriate subsequent measures.



### Safety Level label

Worldwide there are several recognised technical rules regarding the safety requirements surrounding the products that are used in systems for the storage and supplying of liquid fuels. You can use our **Safety Level Fuel** label for your personal orientation, and define the safety level of your storage and supply system accordingly.

Always follow the applicable regulations in your country of use.



#### Safety Level Fuel+

The product constitutes a safety device which prevents

- dangerous operating conditions, or
- an overfilling of the tanks in the storage and supply system, or
- displays or prevents the leakage of liquid fuels from the storage and supply system.



#### Safety Level Fuel

The product constitutes safety equipment which prevents

- dangerous operating conditions of the supply system, or
- the leakage of liquid fuels from the supply system.



## Abbreviations and units

A	= Amps, unit of measurement for amperage	JGS	= Liquid manure, semi-liquid manure and silage effluent
ABS	= Acrylonitrile butadiene styrene	KST	= Plastic
AC	= Alternating current	l/h	= Litres per hour, unit of measurement for volume-flow rate
ATEX	= Explosion Protection Directive 2014/34/EU	LVD	= Low Voltage Directive 2014/35/EU
AwSV	= German Ordinance on Installations for the Handling of Substances Hazardous to Water	M	= Male thread
bar	= bar, unit of measurement for pressure	NBN	= Standard of Bureau for Standardisation (Belgium)
DIBt	= German Institute for Structural Engineering	ÖNORM	= Standard of Austrian Standards Institute
DIN	= German Institute for Standardisation	PA	= Polyamide
DWA	= German Association for Water, Waste Water and Waste, Hennef	POM	= Polyoxymethylene
EMC	= Electromagnetic Compatibility Directive 2014/30/EU	PS	= Maximum admissible pressure, with unit of measurement
EN	= European standard	PTC	= Positive Temperature Coefficient Resistance
EPBM	= Ethylene propylene diene monomer rubber	RoHS	= Directive on the restriction of the use of certain hazardous substances 2011/65/EU
EPL	= Equipment Protection Level according to EN 60079-1	SVTI	= Swiss Association for Technical Inspection
EU-BauPVO	= Construction Products Regulation (EU) No. 305/2011	TRbF	= German Technical Regulations for Combustible Liquids
F	= Female thread	TRÖI	= German Technical Regulations of IWO for oil systems
FAME	= Fatty acid methyl esters	ÜHP	= Manufacturer's declaration of compliance after the product has been tested by a recognised testing authority
FKM	= Fluorinated rubber	V	= Volt, unit of measurement for voltage
G	= Thread description for cylindrical female or male thread according to EN ISO 228-1	VA	= Volt x Ampere = unit of measurement for electrical apparent power
GRP	= Glass-fibre reinforced plastic	W	= Watt, unit of measurement for power or electrical power
HNBR	= Hydrotreated NBR	ZP0410	= Material number of zinc die-casting
HVO	= Hydrotreated vegetable oils	Ø	= Outside diameter
Hz	= Hertz, unit of measurement for frequency	% (V/V)	= Percentage by volume in %, Vol.-% so far
ID	= Inside diameter		
IP	= Protection type according to EN 60529 (Ingress Protection)		

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LPG Systems

Caravan, Camping & Marine



Oil Firing Installations

Tank Management