

TT-FLASHER-BE

Hazardous Area, Battery Powered Flashing LED Alarm Signal Installation/Operation Instructions



PRODUCT CHARACTERISTICS

Enclosure rating	NEMA-4X, IP66 anti-static materials
Weight (with rain hood and leader cable)	1.4 kg nominal
Light source	3 high intensity, high efficiency red LEDs
Battery information	2 "AA" Alkaline Long Life Duracell MN 1500
Projected battery life	2 years – nominal
Recommended battery replacement interval	1 year or whenever low battery signal is detected
Duration of leak detected signal	Minimum 30 days at 20°C
Duration of low battery signal	Minimum 30 days at 20°C
Rain/UV resistance	Suitable for outdoor installations
Maximum ambient temperature	40°C
Minimum ambient temperature	-20°C (operational with limited duration to -40°C)

APPROVALS



Intrinsically Safe Apparatus
Class I Div 1 Groups A, B, C & D
AEx ia IIC T4

Baseefa09ATEX0150X II 1G
IECEx BAS 09.0064X Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +40°C)



Ex ia IIC T4
Enclosure Type: 4X, IP66
Temp Code T4

Entity parameters:
U_s = 3.3V I_s = 7.3mA P_s = 6.02mW C_s = 100µF L_s = 200mH

GENERAL INFORMATION

Please read these instructions and keep them in a safe place. These instructions must be followed carefully to ensure proper operation.

Raychem TT-FLASHER-BE is designed for use in ordinary or hazardous areas (see approvals section for details). The device is approved as Intrinsically Safe.

The TT-FLASHER-BE has been designed for use with any of the Raychem TraceTek family of sensor cables, including TT3000, TT5000, TT5001 and TT7000. The device can also monitor the TT-FFS fast action fuel detection probe. No external zener safety barriers are required. A single TraceTek cable or TT-FFS probe is connected directly to the TT-FLASHER-BE to provide visual indication of a potential leak condition.

IMPORTANT: Do not use the TT-FLASHER-BE device in a plant safety or emergency shut down application that requires immediate response. It is not designed for this type of application. TraceTek has other product solutions for plant safety or emergency shut down applications that will provide immediate feedback of a leak detection event.

TT-FLASHER-BE must be seen by an operator to be effective. There are no provisions for relay contacts or other means of remote alarm indication.

INSTALLATION ITEMS (NOT SUPPLIED)

- Mounting hardware for the TT-FLASHER-BE if a wall mount location is selected.

TOOLS REQUIRED

- Large flat blade screwdriver
- Very small Philips head screwdriver

OPTIONAL ACCESSORIES:

- TT-MET-MC (571293-000) Cable end termination

STORAGE

Keep the TT-FLASHER-BE in a dry place prior to installation. Avoid damage to components.

Installing the TT-FLASHER-BE

Note: To avoid damage to the TT-FLASHER-BE, store the unit in its packaging until ready to install.

Selecting the mounting position

The TT-FLASHER-BE is approved for use in hazardous areas and can also be used in ordinary areas (see Figure 1). Choose a location that is visible to facility staff who will be responsible for monitoring the visual flashing signal.

Avoid locations where dirt, snow or other material can block the lens.

Do not mount in a high velocity dust laden atmosphere.

Mounting the TT-FLASHER-BE on riser pipe—Figure 2

- The TT-FLASHER-BE has been designed to fit snugly on a 2-inch PVC riser pipe. Reducers may be used for other pipe sizes.
- Rotate the head of the Flasher so that the red lens will be visible to facility personnel.

Wall mounting the TT-FLASHER-BE—Figure 3

- The TT-FLASHER-BE can also be mounted to a vertical surface by utilizing the four mounting holes in the rear of the TT-FLASHER-BE enclosure box.
- The installer should select and provide mounting hardware suitable for the wall surface. Mounting dimensions are shown in Figure 3.
- Mount the TT-FLASHER-BE on a wall surface that is visible to facility staff during normal inspection rounds.

Connecting the TT-FLASHER-BE to TraceTek sensor cable or probe

- The TT-FLASHER-BE is provided with approximately 18 inches of leader cable and a female -MC series TraceTek metal connector. The -MC connector is compatible with TT3000, TT5000, TT5001, TT7000 sensor cable; TT-FFS-MC and with TT-MJC-MC series of jumper cable.
- Lift the TT-FLASHER-BE from the riser pipe (if used) and connect the female metal connector on the leader cable with the male metal connector from the sensor cable or jumper cable.

Note: Proper TraceTek sensor cable installations do not use exposed female connectors at any end of the sensor cable. Always install a male end termination (TT-MET-MC) on any female sensor cable connector. The sensor cable will not operate without proper cable end termination.

- Electrical tape should be wrapped around all connectors to provide corrosion protection.
- Press the TEST button and verify the TT-FLASHER-BE flashes once per second. This indicates the battery voltage is OK and the sensor cable connection is good.

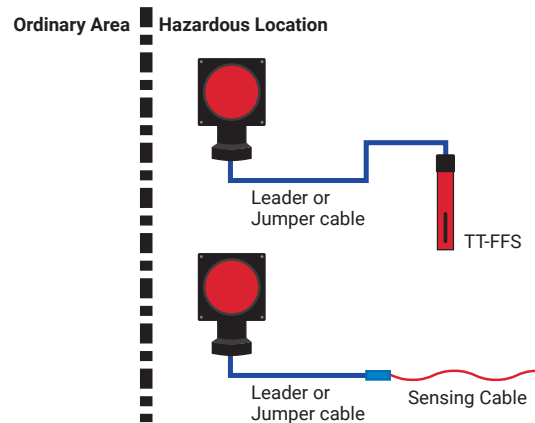


Figure 1: Hazardous area installation



Figure 2: TT-FLASHER-BE mounted on 2-inch PVC riser pipe

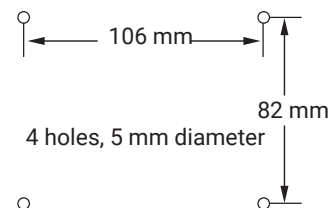


Figure 3: Dimensions for wall mount of TT-FLASHER-BE

Operating Instructions

Under normal conditions, the TT-FLASHER-BE unit will not be flashing.


If a leak is detected, the TT-FLASHER-BE will single flash at 1 second interval continuously.

If the batteries reach a low voltage condition, the TT-FLASHER-BE will double flash at 2 second interval continuously.

If the batteries reach a low voltage condition and a leak is detected, then the TT-FLASHER-BE will alternately single and double flash at 1 second interval continuously.

 **Note: If the batteries go completely dead, the TT-FLASHER-BE will be unable to signal a leak condition.**

A recessed TEST button has been provided on the lower edge of the TT-FLASHER-BE to test the battery power and sensor continuity. When the TEST button is pressed, the TT-FLASHER-BE will flash once per second if the battery voltage is OK and the sensor is properly connected.

 **Note: If the TT-FLASHER-BE leader cable is not properly connected to the sensor or if the battery voltage is too low, pressing the TEST button will not result in the once per second flash.**

Reference Table 1 for an explanation of flashing conditions in normal operation mode and when the TEST button is pushed.

Table 1. TT-FLASHER-BE operational status indications

Mode	Flashing Status	Meaning	Appropriate Action
Normal operation	No flashing light	No leak	No action needed
	Single flash at 1 second interval	Leak detected	Check for leak
	Double flash at 2 second interval	Low battery voltage	Replace batteries
	Alternating single and double flash at 1 second interval	Leak detected and low battery voltage	Check for leak and replace batteries
When TEST button is pushed. Weekly interval test is recommended.	Single flash at 1 second interval	Battery voltage is OK and wiring to sensor cable is good This is the normal "good test" indication	No action needed
	No flash	Sensor wiring is damaged, sensor is disconnected or batteries are completely dead	Immediate servicing is required
	Double flash	Low battery voltage	Replace batteries

Maintenance and Troubleshooting

Periodic battery power test using test switch

Local staff should push the TEST button on each TT-FLASHER-BE unit once per week. Pushing the TEST button should result in a flash at once per second, as long as the button is pushed.

Battery Lifetime

Battery lifetime depends on how much flashing is required, and general environmental conditions at the mounting location.

Battery lifetime is reduced at high ambient temperature and low ambient temperature.

Recommended battery replacement interval for temperate climates is once per year. Arctic conditions require more frequent battery replacement to achieve long duration flashing signals should they be required.

See Table 2 for information related to battery lifetime at various conditions.

Table 2. Battery life projections

Condition	Battery life projection (at 20°C)
No leak, weekly testing of battery power	2 years – nominal
Leak detected	Minimum 30 days of single flash
Low battery voltage	Minimum 30 days of double flash

It is the user's responsibility to schedule routine battery replacement and conduct weekly tests.


Replacement of TT-FLASHER-BE unit

Battery replacement should be done in a safe location on a table surface, rather than in the Hazardous location where the TT-FLASHER-BE is installed. The TT-FLASHER-BE unit should be removed from its mounting location, and replaced with a substitute TT-FLASHER-BE unit that has recently had its batteries replaced. The user can then replace the batteries in the original TT-FLASHER-BE unit in a safe location, and have it available as a substitute unit for future needs.

- For riser pipe mounting, lift the TT-FLASHER-BE from the riser pipe and disconnect the sensor or jumper cable.
- For wall mounted units, remove the TT-FLASHER-BE from wall and disconnect the sensor or jumper cable.
- Install a substitute TT-FLASHER-BE unit that has had its batteries recently replaced.
- Reconnect sensor or jumper cable to TT-FLASHER-BE leader cable.
- Electrical tape should be wrapped around the connectors to provide corrosion protection.
- Press the TEST button and verify the TT-FLASHER-BE flashes once per second. This indicates the battery voltage is OK and the sensor cable connection is good.
- Remount TT-FLASHER-BE on riser pipe or on wall.

Maintenance and Troubleshooting

Battery replacement

- In order to comply with hazardous area approvals and procedures, battery replacement should be performed in a work shop or other nonhazardous location.
- In the work shop, position the TT-FLASHER-BE unit on its back.
- Loosen the four screws securing the lid.
- Gently separate the lid from the TT-FLASHER-BE body. Then slowly rotate the lid to place the red lens on the table surface next to the body.
- Place the lens on a soft towel to avoid scratching the lens.
- Loosen the small screw on the battery cover, then remove the battery cover. See arrow in Figure 4.
- Remove old batteries and replace with fresh Duracell MN1500 "AA" batteries.
- Replace the battery cover and tighten the small cover screw.
- Reposition the lid on the body while verifying the internal wiring will not be pinched when the lid is secured.
- Verify TEST button is facing down (see Figure 5).
- Tighten the four screws evenly to insure a tight gasket seal within the lid (see Figure 6).
- If available, put black vinyl cap on the end of the TT-FLASHER-BE leader cable.
- Store the TT-FLASHER-BE unit in safe location to await future use in facility.
-  Dispose of the old batteries properly. Do not throw away the old batteries in a garbage receptacle; take them to your locally approved collection center for recycling.

Bench top testing

Bench top testing of the TT-FLASHER-BE unit is convenient if you have the optional accessories: TT-MET-MC.

To confirm that the TEST button is working properly and the new batteries are installed properly, attach a TT-MET-MC cable end termination to the leader cable. When you press the TEST button, the TT-FLASHER-BE should start flashing at a rate of once per second. If the TT-FLASHER-BE unit is not flashing with the new batteries installed, remove the lid to check internal wiring is not damaged and batteries are correctly installed.

If the unit still does not work properly, further troubleshooting is not recommended. Replace the TT-FLASHER-BE unit.

Consult Table 1 for an explanation of what each flashing condition means.

Cleaning the lens

The colored lens of the TT-FLASHER-BE is a potential electrostatic charging hazard – clean only with a damp cloth.

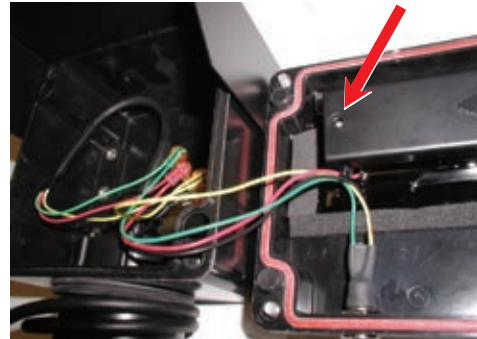


Figure 4: Battery cover and screw



Figure 5: Proper position of lid and wiring



Figure 6: Tightening the screws

North America

Tel +1 800 545 6258
info@chemelex.com

Latin America

Tel +1 713 868 4800
info@chemelex.com

Europe, Middle East, Africa, India

Tel +32 16 213 511
Fax +32 16 213 604
info@chemelex.com

Asia Pacific

Tel +86 21 2412 1688
infoAPAC@chemelex.com

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