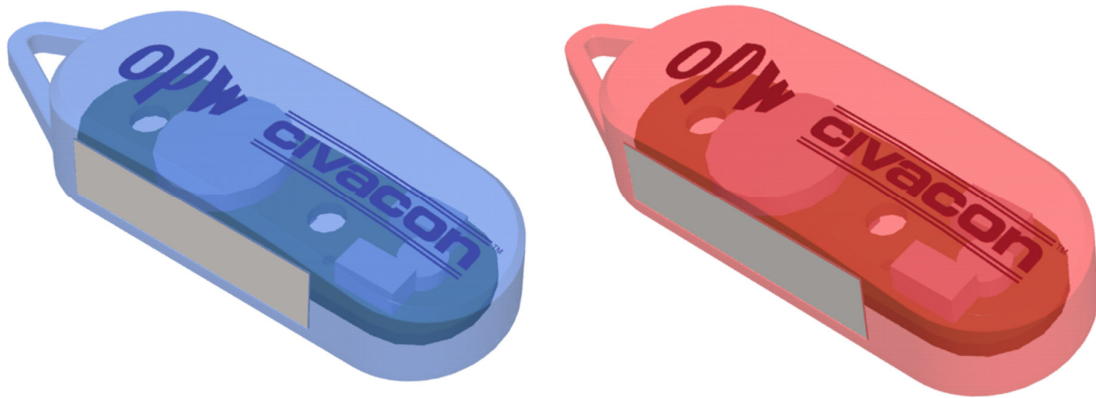


**Manual**

***OPW Fluid Transfer Group Europe BV***



***Function Key  
Rack Monitor 8800E/8801E***

## Disclaimer

With this document an user manual is presented of the **OPW** Function Key and is designed to use in conjunction with the **OPW** Rack Monitor 8800E/8801E. It is important that the end user (in many cases the operator) of the **OPW** Rack Monitor 8800E/8801E has an adult age, is skilled, reads and understands this manual (and therefore has knowledge of the English language), otherwise it is not recommended to use the **OPW** Rack Monitor 8800E/8801E and its Function Key.

**OPW Fluid Transfer Group Europe BV** guarantees that this product is adequate for the stated use in chapter 1 and is in accordance with the Directive(s) stated in the declaration of conformity in this manual.

**OPW Fluid Transfer Group Europe BV** cannot be held responsible for incorrect use of the Function Key & Rack Monitor 8800E/8801E. The Function Key is for the controlling the monitoring of loading of tank trucks with the application and parameters stated in chapter 1 of this manual.

***In case this OPW Function Key is used in another location then mentioned in the initial quotation or is abused, all guarantees will be declined.***

This user manual is a part of the supplied product and must be stored in a known position, when the Function Key is relocated or sold to a third party the manual must be attached at all times. All pages of this manual should be present, in accordance to the table of contents. If not, please contact the **OPW Fluid Transfer Group Europe BV**.

When there are intentions to relocate the Rack Monitor 8800E/8801E, due to e.g. a restructuring of the infrastructure, it is recommended to contact **OPW Fluid Transfer Group Europe BV** for consult.

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This is an **OPW Fluid Transfer Group Europe BV** product, for technical assistance, information and/or complaints contact:

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Mr. Harry Gilde  
**Managing Director**

## ***Warranty***

All parts and products are thoroughly inspected and tested from the time raw material is received at our plant, until the product is completed. We guarantee that all products are free from defects in materials and workmanship for a period of one year from the date of shipment. Any product that may prove defective within said one year period will, at our option, be promptly repaired, or replaced, or credit given for future orders. This warranty shall not apply to any product which has been altered in anyway, which has been repaired by any party other than an authorized service representative, or when such a failure is due to misuse or conditions of use. We shall have no liability for labour costs, freight costs, or any other cost or charges in excess of the amount of invoice for the products.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## ***Approvals***

The BCU Red, Blue, Green and Yellow Function Key is suitable for  
Equipment group II, category 2 ( II 2G Ex ia IIC T4 )  
I.S. I/1A,B,C & D  
ATEX and FM

## ***Technical assistance in the U.S.A.***

If at any time during the installation a question arises that is not covered in this Installation Instruction, or with any other applicable documents referenced, feel free to call the CIVACON ELECTRONICS TECHNICAL ASSISTANCE LINE :

**In the U.S.A., Call 1-800-5 CIVACON . (800-524-8226)**

For the CUSTOMER SERVICE DEPARTMENT :

**In the U.S.A., Call 1-888-526-5657**

In other countries, call your local agent.

4304 MATTOX RD. \* KANSAS CITY, MO 64150  
PH: (816) 741-6600 \* FAX: (816) 741-1061  
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## 1 Specifications

This document is to specify the functions of the colored key provided with the Rack Monitor 8800E/8801E. The Rack Monitor 8800E/8801E is a loading Rack Monitoring system detects and communicates an overflow condition to the loading rack control automation equipment by means of a normally open relay contact. In addition this non-permissive condition as well as diagnostic information is displayed. A typical system contains loading rack control monitor (88xxE Rack Monitor) and a API 10 wire screened coiled cable with a black 10 pins 4 J-slot plug (Model 7400E).

This device is designed for manual controlling the system without the need of opening the Rack Monitor. Different authorization levels are defined in software and are indicated by the color of the Function Key. In this way additional functionality can be added to create a flexible system to fulfill future needs.

The Function Key must be held in front of the Rack Monitor 8800E/8801E (in the designated position). As soon the key is in place an infrared data stream is transmitted to the Rack Monitor. Software in the Rack Monitor checks the received data and reacts accordingly.

The design of the Function Key has been made to fit into your pocket or on a key ring.

The first 2 versions will be available with different colors and different functionality. This to give certain level of authorities within organizations and their needs for safety procedures.

### 1.1 Specifications inside Function Key Enclosure

Internal Pressure	: 80 kPa (0.8 bar) to 110 kPa (1.1 bar) (atmospheric pressure)
Ignition Energy	: ≤0.06 mJ (for electrical apparatus of Group IIB)
Internal Connections	: Earthing or equipotential bonding
Expected Lifetime battery	: 4 years stand-by

### 1.2 Specifications external environment

Usage Temperature Range ( $T_u$ )	: -45°C to +40°C
Storage Temperature ( $T_s$ )	: -20°C to +40°C
Max. Surface Temperature ( $T_4$ )	: ≤135°C
IP Class closed	: IP54 acc. to IEC 60529
Resistant to	: UV Light (within Sun light) : Corrosion : Ingress of Gasoline vapors and liquids : (Diesel) Exhaust fumes, Rain Water : All other weather conditions : Explosive Mixtures
External Pressure	: 80 kPa (0.8 bar) to 110 kPa (1.1 bar) (atmospheric pressure)
Air	: Normal oxygen content, typically 21% v/v

### 1.3 General Specifications

Outline dim. Function Key	: max. width = 20 mm : max. length = 65 mm : max. height = 15 mm
Material Housing	: Poly carbonate
Max. capacitance	: 15 pF
Surface Resistance	: < 1GΩ at (23±2)°C and (50±5)% relative humidity
Weight	: 13 gr. (0.45 ounces)

Blue Function Key options : Operations Bypass Function  
(e.g. wet sensors, non-conform with EN13922, broken wires, out of specs)

**Caution: The Grounding can never being Functioned with the Blue Key!!**

Red Function Key options : Total Rack Bypass Function and diagnostic display  
(e.g. setting output relay to permissive),

## 1.4 Directive and Standard Compliance

To use the Function Key in a hazardous environment the following directives are applicable.

**Directive Compliance:**

ATEX : II 2 G Ex ia IIC T4

The Function Key Rack Monitor 8800E/8801E is designed according to the following standards.

**Use of Standards:**

EN 60079-0 *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

EN 60079-11 *Electrical apparatus for explosive gas atmospheres Intrinsic safety 'I'*

EN 60529 *Degrees of protection provided by enclosures (IP Code)*

## 2 Initial installation

No special measures have to be taken to install the Function Key Rack Monitor 8800E/8801E. This Product is ready for use when taken from the box.

## 3 Maintenance

**Caution:**

- To avoid static charge, clean the Function Key only with a damp cloth,
- Make sure never to drop the Function Key onto the floor, because of risk of damaging

## 4 Operational Use

For a correct use of the Rack Monitor 8800E/8801E it is important to follow the instructions in the User-Manual of the Rack Monitor 8800E/8801E supplied to you together with the product and this manual of the Function Key

The following applies:

- All incidents need to be reported to the **OPW Fluid Transfer Group Europe BV**. In case of injudicious use or when a calamity has occurred, the complete construction needs to be inspected according to the maintenance instructions.
- It is prohibited for unauthorized people to be in the near proximity of the Rack Monitor 8800E/8801E. Especially when the Rack Monitor 8800E/8801E is in use, only the operator is authorized to be in the working area of the Rack Monitor 8800E/8801E.

### 4.1 Operational Function (blue) key

It might happen that during use of the Rack Monitor 8800E/8801E some functions must be bypassed to continue working.

For examples :

- Wet sensors,

The procedure to Bypass the (above) operations is as follows:

**Make sure supervision is available when the Function Key is used.**

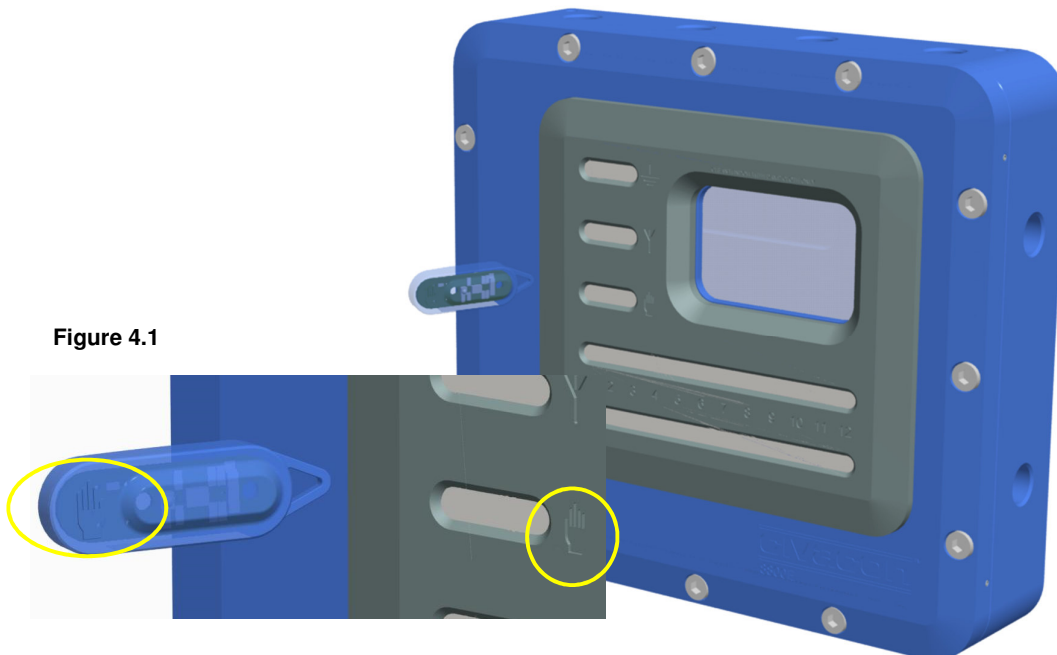


Figure 4.1

A symbol, a small hand on the Function Key indicates the active area of the key. This symbol corresponds with the small hand in the middle bar of the Rack Monitor 8800E/8801E.

To activate the key it has to be placed in the corresponding slot marked with a small hand. (see Figure 4.2 and Figure 4.3 )

As soon as the Rack Monitor receives a valid infrared signal the two blue indicators in the second bar will change from flashing to a steady light for 2 seconds.

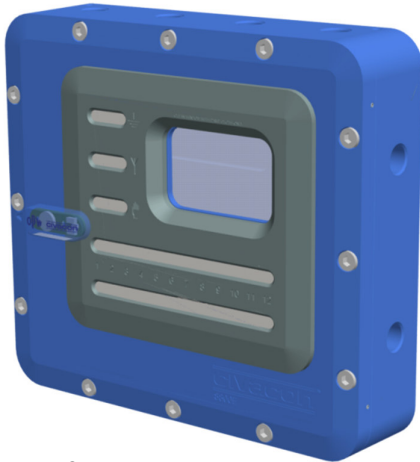


Figure 4.3

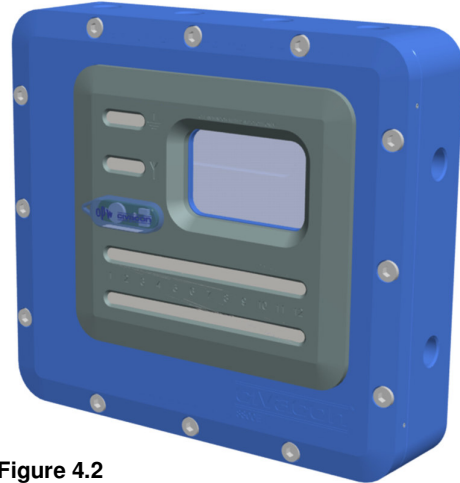
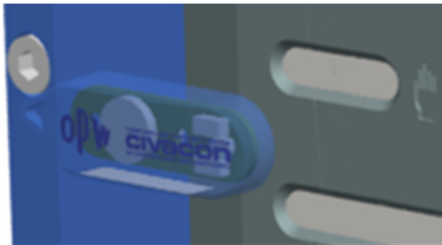


Figure 4.2



The received data is processed and the necessary action will be taken. If the Rack Monitor enters the bypass function two yellow LED indicators behind the Function Key will start flashing. The key can be removed as soon as the Blue indicators restart flashing. Any additional use of the Function Key is not shown on the yellow indicators once the Rack Monitor has entered the Bypass Function (stackable bypass)

**Caution: The Grounding can never being Bypassed with a blue Function Key!!**



## Stackable Bypass function.

This stackable Bypass function differs from the bypass function of all our previous Rack Monitors. It will Bypass the occurred error instead of bypassing the Rack Monitor.

For example compartment 2 of a tank truck equipped with 2-Wire sensors becomes wet during loading. The Rack Monitor will switch to Non-permissive, trying to avoid an overfill situation. The loading arm connected to compartment 2 must/will be disconnected and the adaptor closed. At this moment the overfill detection of compartment 2 can be bypassed with the blue key. The wet sensor at compartment 2 will be ignored and as soon as a another compartment sensors becomes wet it will shut down again. This can be done until all sensors are Bypassed.

This is of course only possible with 2-Wire sensors. With 5-Wire sensors individual Bypassing of wet sensors is NOT possible.

Bypassing can be done for every operational related errors but not for ground verification. Also for all non-operational errors like shorts, open wires and broken sensors. (see above)

**Caution: Bypassing is not always allowed and code of practice or local laws must be observed. According EN13992 bypassing is NOT allowed and therefore the Rack Monitor will exit the EN13922 mode. Or bypassing in EN13922 mode is not possible (depends on software version)**

## 4.2 Rack Function (Red) Key

The Rack Monitor 8800E/8801E is also shipped with a Red Function Key. This key should never be used for normal operation. This key is only needed as last resort to energize the permissive or ground verification relay. The Rack Monitor 8800E/8801E can only be bypassed if sensors are detected (wet or dry) or proper ground has been verified.

E.g.

- Non conformity with EN13922,
- Broken wires,
- Disconnected wires,
- Out of specifications,
- 

**When then Red Function Key is used none of the overfill sensors or grounding is monitored.**

**Make sure supervision is available when a Function Key is used.**

Never should this be done when no special precautions are made. Make sure the tank truck is properly grounded. In addition a different diagnostic display will appear with all important sensor data.

The procedure to Bypass the Rack Monitor 8800E/8801 is the same as in chapter 4.1 for the Blue Function Key.

## 5 Safe disposal Function Key

This device is marked according the European directive (2002/96/EC) on Waste Electrical and Electronic Equipment WEEE.

Please read attachment on safe disposal

***(Disposing of spent batteries/accumulators in the household waste is prohibited!)***



## 6 Procedure in case of Errors

Many events could happen when working with or installing a Rack Monitor 8800E/8801E and the Function Key. Therefore a summary is made of a few events and errors and the possible solutions.

Important is when personal infliction has occurred the local medical services are contacted immediately, **OPW Fluid Transfer Group Europe BV** cannot be held responsible for none, late or erroneous medical care.

When there is no personal infliction, but there is a high risk of explosions, fire or environmental disorders the local authorities should and must be contacted before contacting **OPW Fluid Transfer Group Europe BV**.

Condition	Possible Cause	Solution
The Rack Monitor 8800E/8801E doesn't go into operations Bypass (blue).	The Function Key is broken.	Contact OPW for a new Function Key BCU BLUE
	The battery is empty.	Contact OPW for a new Function Key BCU BLUE ..
	No proper grounding	Check wiring and in case of 5 wire sensors check vapour recovery hose interlock switch
	Open wiring sensors	Check wiring and in case of 2 wire sensors check vapour recovery hose interlock switch
The Rack Monitor 8800E/8801E doesn't go into Rack Bypass (red).	The Function Key is broken.	Contact OPW for a new Function Key BCU RED.
	The battery is empty.	Contact OPW for a new Function Key BCU RED.
	No sensors detected or no valid ground	Check wiring, there must be at sensors or ground verification connected

Since there are no repairable components in the Function Key a broken Function Key must be replaced.

For all other possible errors or damages to the Function Key and/or Rack Monitor 8800E/8801E, contact **OPW Fluid Transfer Group Europe BV** and ask for assistance to obtain a safe and right use.

### Additional colour keys

Any new released Function Key in another colour then Blue or Red will be accompanied with a separate document.

### Annex A – Certificate(s) and additional documentations

- ATEX certificate.
- Multi language Document for safe disposal of Electrical and electronic equipment.