



(1) **EU-Type Examination Certificate**

- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 20 ATEX 0389 X**
- (4) Product: BW RigRat Local Area Gas Monitor
Type BWRR100 series
- (5) Manufacturer: Honeywell Analytics Limited
- (6) Address: Hatch Pond House, 4 Stinsford Road, Nuffield Estate, Poole, Dorset, BH17 ORZ, United Kingdom
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no 20CH-00571.X41.
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN IEC 60079-0:2018
EN 60079-1:2014
EN 60079-11:2012

Except in respect of those requirements listed at item 18 of the schedule.

- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:



II 1G Ex ia IIC/IIB T4 Ga or II 1G Ex da ia IIC/IIB T4 Ga
II 2G Ex db ia IIC/IIB T4 Gb

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Patrick Gutensohn
Product Certification



(13)

Appendix

(14)

EU-Type Examination Certificate no. SEV 20 ATEX 0389 X

(15) **Description of product:**

As a transportable equipment, the BW RigRat Local Area Gas Monitor (hereinafter called "RigRat") fills the Gap between portable personal detectors and fixed-infrastructure fire and gas systems. Its primary function is to alert personnel of a gas leak in their proximity, it can provide continuous measurement of gas concentrations.

The overall dimensions of the RigRat is about 400 mm*290 mm*470 mm, it consists of an enclosure, 2 rechargeable battery packs 500-0165-00 0 as main power, 1 Li-ion rechargeable cell MS-621T for RTC power, 1 LCD display, 4 LED indications for light alarm, 2 buzzers for sound alarm, 1 multi-function button and PCBAs. Additionally, it may also be optionally equipped with a gas-sucking pump, up to 6 kinds of wireless modules fitted in 4 wireless module slots, up to 5 kinds of sensors fitted in 6 sensor slots.

The enclosure is composed of the front and back PC/PBT housing covers, bottom base made of conductive TPU, stainless steel 316 side frame, and the upper stainless steel handle wrapped with conductive TPU. In addition, there is a layer of conductive film attached at the surface of the LCD display.

AC charger connector is provided to charge the battery packs in a non-hazardous area, refer to "Specific Conditions of Use" for more information. IS charger connector is used to connect through a safety barrier to charge one of the battery packs in hazardous area, likewise providing the intrinsically safe power to the product.

The whole product is assessed to meet the requirement of Ex i, in addition, Ex d may be involved only in case that DYNAMENT NDIR sensor or LEL sensor with separate Ex certificate is configured.

Ratings:

Classification of installation and use: portable

Ingress protection: IP54

Wireless module configuration:

Depending on the configuration, the RigRat may provide GPS, GNSS, Mesh, WIFI, BLE, LoRa, and/or NB-IoT wireless communication, the possible configuration are shown in the table as below:

Designator on PCB	U19	J7	J9	J8
BLE	•			
Either WIFI or NB-IoT			•	
Either Mesh or LoRa		•		
Either GPS or GNSS				•

• Show possible fitted location of wireless modules

Sensor configuration:

The RigRat may be configured with MIPEX NDIR sensor, DYNAMENT NDIR sensor, LEL sensor, PID sensor and EC sensor, which are mounted inside the IP54 enclosure of RigRat. These sensors have been separately certified or tested according to IEC 60079. See below table for more information about these sensors. Satisfactory assessment is carried out within this report to cover the major differences between requirements of latest Standards.

Sensor	Type	Ex marking	IECEx CoC or ExTR	Ambient temperature (°C)	Standard
EC	4R+EC	Ex ia IIC T4 Ga	GB/SIR/ExTR10.02 76/00	-20~+55	IEC60079-0:2007 IEC60079-11:2006 IEC60079-26:2006
MIPEX NDIR	MIPEX 02 series	Ex ia IIC Ga	IECEx ITS 11.0047U Issue No.5	-55~+60	IEC60079-0:2011 IEC60079-11:2011
Dynament NDIR	MSH2ia ***	Ex db IIC Gb	IECEx FTZU 15.0002U Issue No.2	-20~+60	IEC60079-0:2011 IEC60079-1:2014 IEC60079-11:2011
PID	4R+PID	Ex ia IIC T4 Ga	GB/SIR/ExTR10.02 03/00	-20~+55	IEC60079-0:2007 IEC60079-11:2006 IEC60079-26:2006
LEL	1 LEL 75X	Ex da ia IIC Ga	IECEx ULD 16.0016U Issue No.1	-40~+60	IEC60079-0:2011 IEC60079-1:2014 IEC60079-11:2011
PID	4R+PID	Ex ia IIC T4 Ga	GB/SIR/ExTR10.02 03/00	-20~+55	IEC60079-0:2007 IEC60079-11:2006 IEC60079-26:2006
LEL	1 LEL 75X	Ex da ia IIC Ga	IECEx ULD 16.0016U Issue No.1	-40~+60	IEC60079-0:2011 IEC60079-1:2014 IEC60079-11:2011

For possible sensor installation, refer to the table as below.

	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
MIPEX NDIR Sensor	•					
Dynament NDIR Sensor	•	•		•		
PID Sensor		•				
LEL Sensor			•			
EC Sensor		•	•	•	•	•

- Show possible fitted location of sensors
 EC Sensor:Max.5pcs
 MIPEX NDIRSensor:Max.1pc
 PID Sensor:Max.1pc
 LEL Sensor:Max.1pc
 Dynament NDIR Sensor:Max.3pcs

Besides, there is a noise sensor located inside of the RigRat, which can measure the ambient noise. The RigRat also contains 1 THP sensor din pump version that can measure the ambient temperature, humidity and gas flow outside.

Electrical parameters:

The RigRat provides 4 external connectors with following electrical parameters:

AC charger connector (use only in a non-hazardous area): $U_m = 6\text{ V}$;

IS charger connector: $U_i = 24\text{ V}$, $I_i = 150\text{ mA}$, $P_i = 1.15\text{ W}$, $C_i = 0.36\text{ nF}$, $L_i = 0$;

ON-OFF switch connector : $U_i = 30\text{ V}$, $I_i = 100\text{ mA}$, $P_i = 0.75\text{ W}$, $C_i = 1.1\text{ nF}$, $L_i = 0$;

4~20 mA input connector: $U_i = 30\text{ V}$, $I_i = 100\text{ mA}$, $P_i = 0.75\text{ W}$, $C_i = 0$, $L_i = 0$.

Type designation:

BWRR100 *a-b-c*

a identifies product version: D, P

D: Diffusion version (without pump)

P: Pump version

b identifies sensor configuration with regard to PID, Dynamant NDIR and LEL sensor

0: Fitted without PID, Dynamant NDIR or LEL sensor

1: Fitted with PID sensor

2: Fitted with Dynamant NDIR sensor

3: Fitted with LELSensor

4: Fitted with PID and Dynamant NDIR sensor

5: Fitted with Dynamant NDIR and LELSensor

6: Fitted with LEL and PID sensor

7: Fitted with PID, Dynamant NDIR and LEL sensor

c identifies wireless modules configuration with regard to WIFI and NB-IoT

0: Fitted without WIFI or NB-LoT

1: Fitted with WIFI

2: Fitted with NB-IoT

3: Fitted with WIFI and NB-IoT

Depending on different configurations, the RigRat may refer to different types of protection, gas groups and ambient temperatures, which are specified as below. The onerous restriction shall be taken into consideration in case one of the following is applied.

1. The first digit designates the Diffusion/Pump version. The following table details the Diffusion/Pump version together with ambient temperatures.

Type	Version	Ambient Temperature (°C)
BWRR100 D-b-c	Diffusion version (without pump)	-40~+60
BWRR100 P-b-c	Pump Version	-20~+60

2. The second digit designates the configuration of sensors with regard to PID, Dynament NDIR and LEL sensor. The following table details the sensor configuration together with Ex markings and ambient temperatures.

Type	Sensor Configuration	Ex Marking	Ambient Temperature (°C)
BWRR100 a-0-c	Without PID, Dynament NDIR or LEL	Ex ia IIC T4 Ga	-40~+60
BWRR100 a-1-c	With PID	Ex ia IIC T4 Ga	-20~+55
BWRR100 a-2-c	With Dynament NDIR	Ex db ia IIC T4 Gb	-20~+60
BWRR100 a-3-c	With LEL	Ex da ia IIC T4 Ga	-40~+60
BWRR100 a-4-c	With PID and Dynament NDIR	Ex db ia IIC T4 Gb	-20~+55
BWRR100 a-5-c	With Dynament NDIR and LEL	Ex db ia IIC T4 Gb	-20~+60
BWRR100 a-6-c	With LEL and PID	Ex da ia IIC T4 Ga	-20~+55
BWRR100 a-7-c	With PID, Dynament NDIR and LEL	Ex db ia IIC T4 Gb	-20~+55

3. The third digit designates the configuration of wireless modules with regard to WIFI and NB-IoT. The Following table details the wireless module configurations together with the gas groups.

Type	Wireless Module Configuration	Gas Group
BWRR100 a-b-0	Without WIFI or NB-IoT	IIC
BWRR100 a-b-1	With WIFI	IIB
BWRR100 a-b-2	With NB-IoT	IIB
BWRR100 a-b-3	With WIFI and NB-IoT	IIB

(16) **Report number:** 20CH-00571.X41

(17) **Specific conditions of use:**

- The AC charger system of BW RigRat shall only be applied in non-hazardous area by charger specifically supplied for use with the unit (for example model ADS-25SGP-06 05717E, manufactured by HONEY ELECTRONIC CO.,LTD.), approved as SELV or Class 2 equipment against IEC60950 or an equivalent IEC standard. The maximum voltage U_m from the charger shall not exceed DC 6.0 V.
- The BW RigRat enclosure has an ingress protection of rating of IP54. The user shall ensure that the external plugs that used for IS charger, 4 ~20 mA input and ON-OFF switch will provide a degree of protection of IP54, after they are connected to the sockets.
- Do not open when an explosive atmosphere is present.

(18) **Essential health and safety requirements:**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(19) **Drawings and Documents:**

See test report "Manufacturer's Documents"

