

# TANKSCAN BALLAST TANK & VOID SPACE SAMPLING SYSTEM

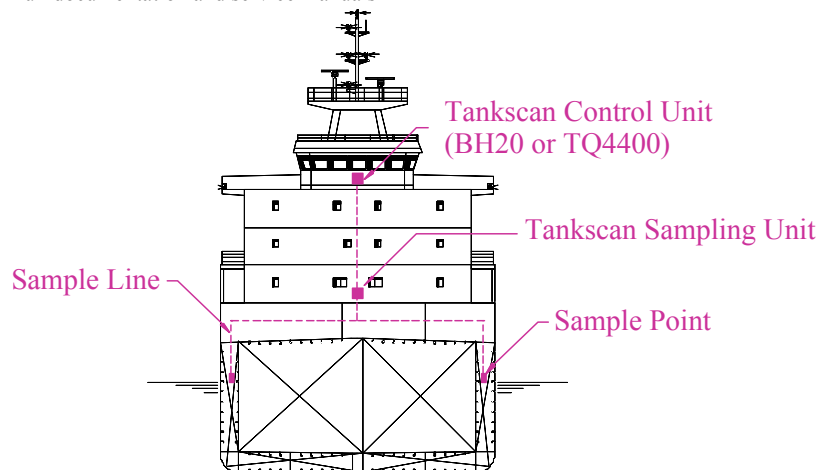
The Tankscan systems have been defined and developed over the past 10 years to meet the exacting marine standards required for ballast tank monitoring. The hub of the system is the Tankscan unit, which can sample gases from up to 64 positions on a vessel. The Tankscan unit houses the gas analysers, pumps, gas conditioning, line selection and control electronics. It also has a separate, independent gas sensor integral with the cabinet to monitor for fugitive emissions, which will shut the system down. The Tankscan unit can then communicate with two types of controller, the BH20 or the TQ4400, each of these can be mounted independently of the Tankscan unit or integrally with the Tankscan unit. Mimic panels can be placed in the wheelhouse or other areas as required. The Tankscan unit can monitor for many combination of gases typically Hydrogen Sulphide and Methane are required, however many others can be accommodated.



Above: Tankscan cabinet and Internal layout.

## FEATURES

- Multipoint (max 64 sample points)
- Ease of installation and set up
- Up to 8 different gas types can be monitored (using TQ4400 control unit)
- Class society approvals (Lloyds, ABS, DNV)
- Ease of maintenance (low running costs)
- User replaceable parts
- End of line valves to prevent line blockage in Ballast Tanks
- Reverse purge to keep lines clear
- Installation and service through out the world (see agent lists)
- Full documentation and service manuals



**TOTAL SOLUTIONS FOR GAS MONITORING**



Marine  
Total solutions for gas monitoring





Samples are drawn through stainless steel tubing preferably 8mm O.D, from the ballast tanks to the Tankscan unit. The lines in the ballast tank are protected from water ingress by TQ's end of line snorkel valve fitted at the end of each sample line. The Transport (deck mounted) tubing is run into a convenient deck level safe, area such as the hydraulics room via an explosive proof penetration (TQ can supply). The user now has the option to site the Tankscan unit, in this selected area. This has the advantage of saving on installation cost, as there will be no piping requirement to the CCR. This will also benefit the environment within the CCR due to the size and the operation integral pumps.

The Tankscan unit has its own independent integral gas sensor to allow it to monitor for any fugitive emissions from inside the cabinet. This then signals to the separate PSU unit which shuts the panel down. Power is not reconnected until the gas levels are below the alarm level threshold.

The Tankscan can be controlled by either the BH20 or TQ4400 control unit. Both these units may be sited up to 1000 meters from the actual Tankscan unit and only require a 5 wire connection between them to operate. (See details on BH20 & TQ4400 control units for operational differences).

The infra-red analyzer used to monitor the flammable gas uses infra-red techniques to detect the gas, has no moving parts and is EExd IIC T5 approved. The Hydrogen Sulphide sensor is EExd IIC T5 and contains an electrochemical sensor that will require replacing approximately once every 24 months.

TQ Environmental Plc, operate a policy of continual product development which means the specification is subject to change without prior notice.

For full assistance with your application contact TQ.

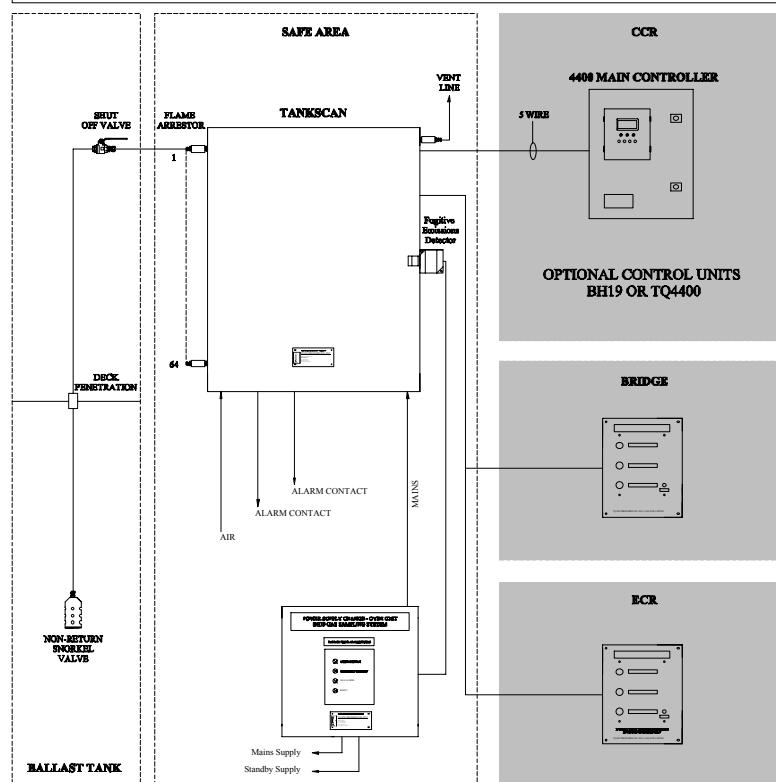


BSGM/D3/02/05

## SPECIFICATIONS

Part	Description
Tankscan	<p>Tankscan base unit comprising 1-64 input lines complete with</p> <ul style="list-style-type: none"> <li>• GD129NI infra red sensor E Exd IIC T5</li> <li>• TQ122 Hydrogen Sulphide detector E Ex IIC T5 (optional)</li> <li>• Flow fail</li> <li>• Pump bypass</li> <li>• Input flame arrestors</li> <li>• Side entry to cabinet for pipe lines</li> <li>• Reverse purge facility to ensure all lines remain clear of debris (external air connection at 6bar required)</li> <li>• Internal electro catalytic flammable gas sensor detector to detect fugitive emissions</li> <li>• 220/110v 50/60 Hz pump               <ul style="list-style-type: none"> <li>○ 2/ 4 litre /min , 0.8bar</li> </ul> </li> <li>• Micro controller with RS485 communication to Control unit               <ul style="list-style-type: none"> <li>○ Replaceable unit with plug and socket connectors.</li> <li>○ Software embedded</li> <li>○ EMC and RFI shielded.</li> </ul> </li> <li>• Vent line flame arrestor</li> <li>• Calibration ports</li> <li>• Relay o/p for gas alarms (SPCO rated 5A a.c.)</li> <li>• Integral power supplies               <ul style="list-style-type: none"> <li>○ 220/110 5V @ 5A</li> <li>○ 220/110 24V@5A</li> </ul> </li> <li>• Cabinet size               <ul style="list-style-type: none"> <li>○ 1-32 input lines H=1000 W=800 D=300</li> <li>○ 32-64 input lines H=1200 W=800 D=300</li> <li>○ Both bulkhead mounted</li> </ul> </li> <li>• Cabinet colour. RAL 7032 (Std Colour)</li> <li>• Gas preparation               <ul style="list-style-type: none"> <li>○ Water trap after stream section</li> <li>○ Coalescing filter</li> <li>○ Particle filter</li> <li>○ Both with replaceable filters.</li> </ul> </li> </ul>

### TYPICAL 4400 SYSTEM SCHEMATIC



## TQ ENVIRONMENTAL PLC

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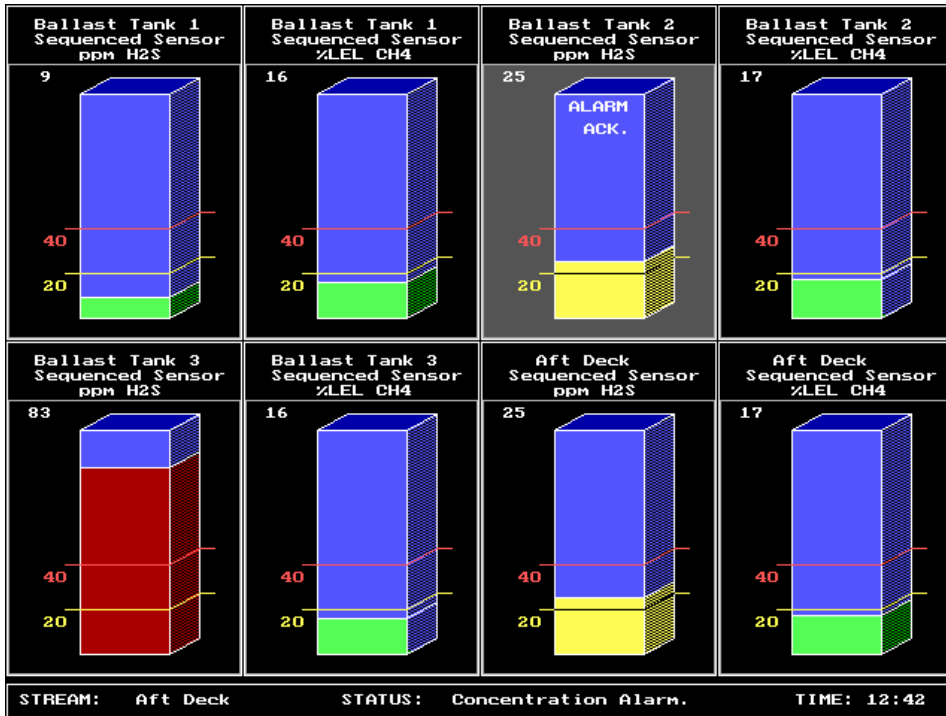
E-Mail: [marine@tqplc.com](mailto:marine@tqplc.com)

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# BH20 CONTROL UNIT FOR TANKSCAN GAS MONITORING SYSTEM



Total solutions for gas monitoring



Above: Typical Screen

HELP FOR BH20 TANKSCAN	
KEYSWITCH: NORMAL POSITION.	KEYSWITCH: MENU POSITION.
KEY	FUNCTION
1.	Help Screen.
2.	View System Alarms.
3.	Screen Make-Up.
4.	Scroll Page Up.
5.	Scroll Page Down.
6.	Goto/Hold A Stream.
7.	Screen Make-Up.
8.	Screen Make-Up.
9.	Stream Operation Groups.
0.	Purge Buttons.
*	General Setup.
ENT.	Acknowledge Alarms.

Press ENT to Exit Help Screen, \* for bargraph help.

Left: Help Screen.

ACTIVE SYSTEM ALARMS.	
Alarm 1	Ballast Tank
Alarm 2	Ballast Tank
Alarm 3	Ballast Tank
Alarm 4	Ballast Tank
Alarm 5	Ballast Tank
Alarm 6	Ballast Tank
Alarm 7	Ballast Tank
Alarm 8	Ballast Tank
Alarm 9	Ballast Tank
Alarm 0	Ballast Tank
Line of Swept Time	
See In-System Menu	

Press 7 to Reset SYSTEM Alarms.  
Press 8 to Reset CONCENTRATION Alarms.  
Press 9 to Setup CONCENTRATION Alarms.  
Press 0 to EXIT screen.

Right: Active Alarm

## FEATURES

- Easy to operate
- Highly Visible alarm status
- Colour TFT display
- Up to 8 different gas sensors types per stream or point monitoring
- Up to 64 different streams monitored in any sequence
- Interfaces with proven Tankscan monitoring system
- HOLD, SKIP, GO TO, MUTE, RESET
- All parameters set up under key control

**TOTAL SOLUTIONS FOR GAS MONITORING**





**SPECIFICATION**

**STAND-ALONE SYSTEMS**

Available as a remote or fully integrated system.

Tankscan controlled by RS485 Communications.

Master key switch prevents unauthorised changing of settings.

Option of serial communications with ICMS, mimic panel or printer.

**NETWORK SYSTEM**

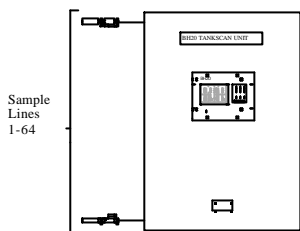
**Option of use with master control unit:-**

- Control of up to 32 Tankscan or TQ8100 systems.
- Modbus interface with ICMS.
- Interface with up to 16 repeater panels.
- Interface to printer.

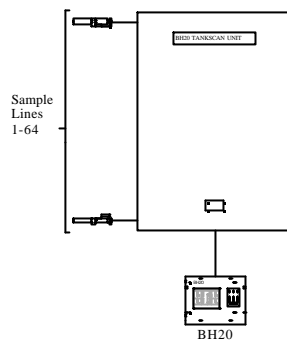
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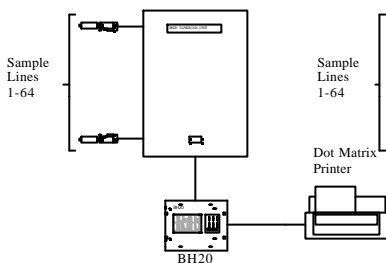
INTEGRATED WITH TANKSCAN



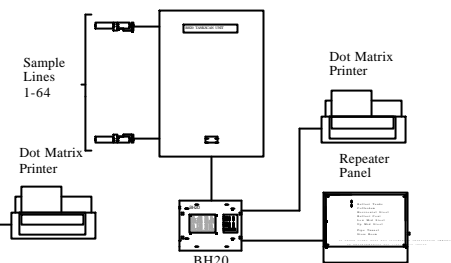
REMOTE FROM TANKSCAN



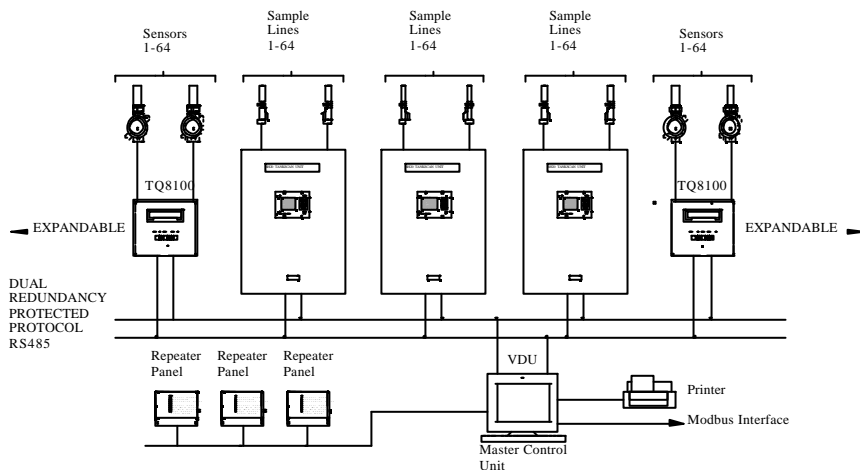
REMOTE WITH PRINTER



REMOTE WITH PRINTER & MIMIC



TYPICAL NETWORK SYSTEM



BH20/D2/12/01

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