

15ppm Bilge Alarm

FOCAS-2000

This product conforms to MEPC.107(49)



■ Features

- This product adopts an automatic operation method using sample water pressure which is matched to the operation of an oil separator or pump.
- The automatic washing function of the detection unit can reduce troublesome manual washing work.
- An error code indication provided at occurrence of a device fault and a stain indication of the detection unit facilitate maintenance and inspection. The product has a high-maintainability structure.
- Operation records such as trouble alarms can be saved in a memory card and confirmed as required.
- For alarms, a double safety method is used. When the oil concentration is 15 ppm or more, and When sample water is defective or the instrument is defective, a alarm is output.
- Replacement of detecting part (sensor) separately sold can be accepted. as the completion of every five years' calibration.

Advanced device recognized throughout the world.

FOCAS-2000

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Since our company was established in 1969, we have been developing environment monitoring devices and many measuring instruments and sending out them into the industrial world to make a contribution for environmental protection.

In these days in which environmental pollution is gradually advancing on a worldwide scale, the whole world is tightening the environmental protection and monitoring on stricter standards.

This advanced device FOCAS-2000 has been researched and developed by using the accumulated technology that was highly appraised as a result of sending out the Oil Concentration Detector FOCAS 4 Series in the past.

Approval of the Model in Each Country in the World.



- EC (Europe.DNV)
- USCG (USA · USCG46CFR162.00)
- CCS (CHINA to be approved)

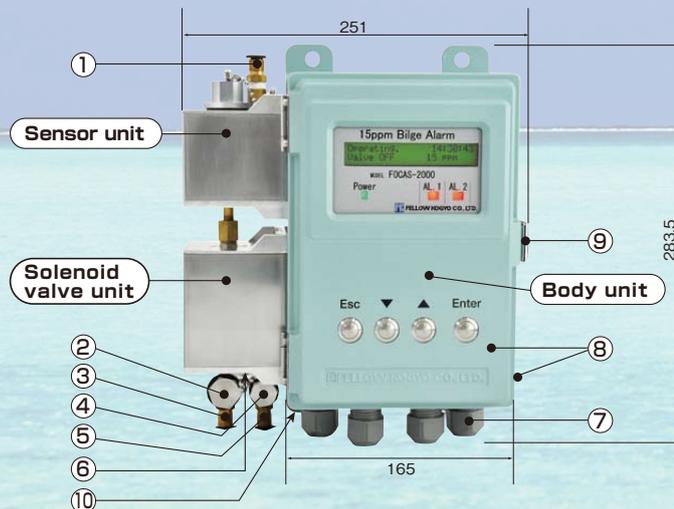
For protection of the beautiful global environment, this product plays an important part in the sea all over the world

The principle of measurement using our unique technology is preeminent above others.

Measuring method

The FOCAS-1800 using a full optical continuous measuring method* can surely grasp changes of oil concentration every moment while providing a very quick measurement response.

*The light coming from optical elements is received by multiple optical elements. Then, a complicated analysis about changes of oil type or concentration and differences of pattern due to mixed foreign substances can be made by CPU and software in an instant through calculation.



- Names of part**
- ① Sample water outlet
 - ② Sample water filter
 - ③ Sample water inlet
 - ④ Clean water filter
 - ⑤ Clean water inlet
 - ⑥ drain
 - ⑦ Wiring ports
 - ⑧ Case cover
 - ⑨ Snap latch
 - ⑩ Earth screen
- Installation screw hole 4-10φ 260mm×116mm

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FOCAS-2000

15ppm Bilge Alarm

Product Specifications

Alteration / correction hysteretic

	Date	Revision	The reason for revision / correction	Approved	Name
△1	2012-01-18	Rev.1.01	Internal Arrangement Drawing and the Terminal Base Arrangement Change of contact arrangement of terminals	Y.Kikuchi	Y.Uehara
△2	2012-03-09	Rev.1.02	List of spare parts changed. Addition note of Φ10 joint set(※2)	Y.Kikuchi	H.okumura
△3	2012-06-08	Rev.1.03	Outline dimensions · Material etc changed. Added the mounting space dimensions and note.	Y.Kikuchi	H.okumura

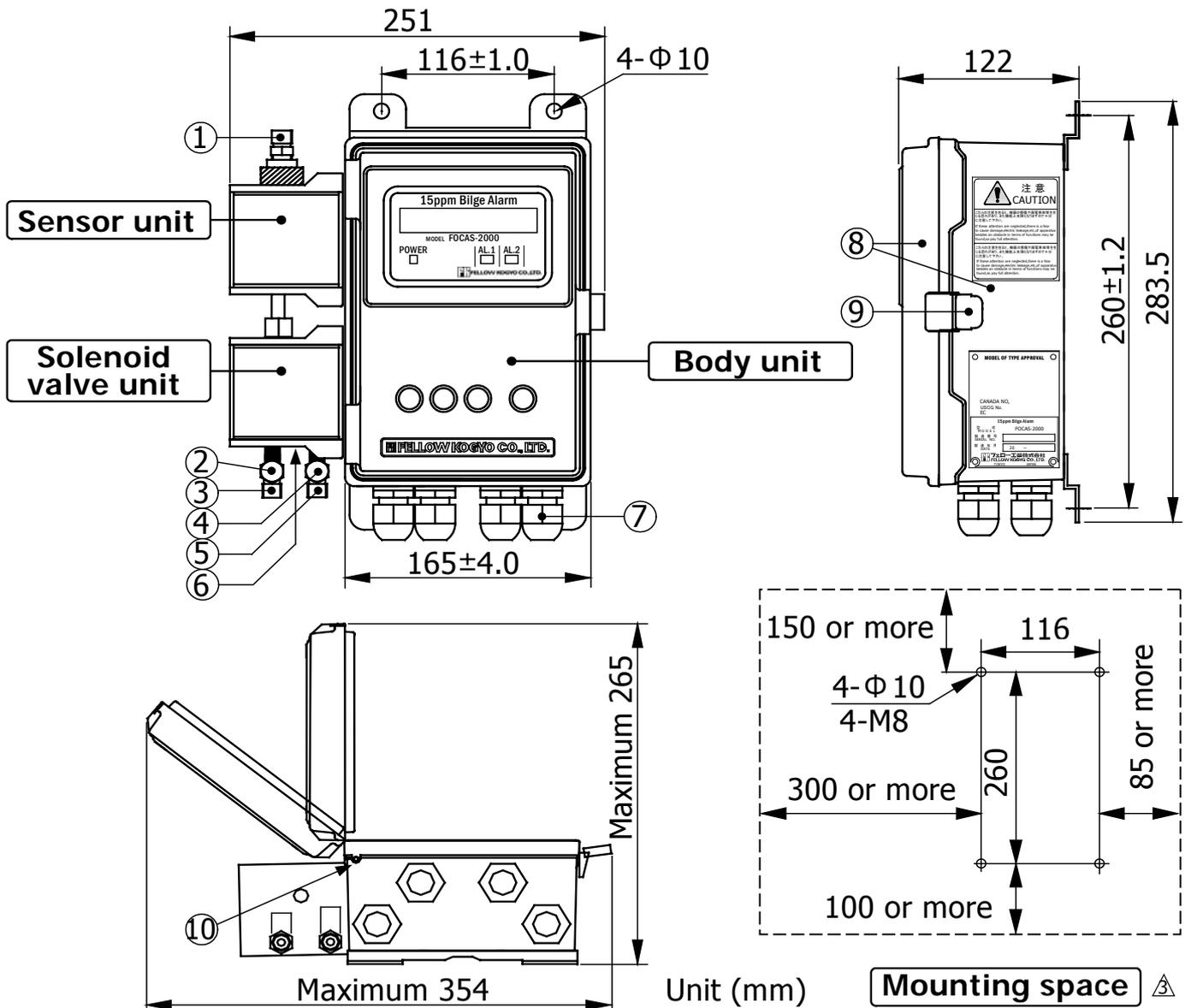
Note Number in triangle are change or modify ordered.

Specifications

Oil concentration meter FOCAS-2000

Main item	Specifications	Drawing NO.							
Application	Bilge concentration monitor (bilge drainage)								
Measurement method	Optical continuous measurement								
Operation method	Automatic operation using sample water pressure								
Response time	Within 5sec , comply with MEPC107(49)								
Power supply /power consumption	AC90 ~ 240 V 50 ~ 60 Hz 20 VA or less								
Measurement range	30ppm in full scale								
Measurement accuracy	Within ± 5 ppm (at 15ppm)								
Conditions on sample water	pressure : 0.03 ~ 0.3MPa flow rate : 0.2 ~ 3 L /min water temperature : +2 ~ +45°C								
Clean water pressure for washing	0.03 ~ 0.6MPa								
Material measured and identified	light oil 10ppm in 100ppm iron oxide solution								
Battery for clock and lifetime	Lithium battery(CR2450) about 2 years (recommended manufacturer : FDK Energy Co Ltd. Japan)								
Service temperature· humidity	0 ~ 50°C 5 ~ 90%RH no dew condensation								
Maximum measurement angle of inclination	Within 22.5° in each direction								
Indications and Outputs	Indication of oil concentration : displayed in 24 digits 2 lines. alpha-numeral Character LCD、 oil alarm lamp : red LED blinks Alarm1、Alarm2、 VALVE Each contact output、 REC Analog output								
Terminal specification /oil alarm operating point	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">VALVE (for three-way valve)</td> <td>1 circuit for contact output, 1 B contact (Max AC250V 2 A) Supply voltage output</td> </tr> <tr> <td>Alarm1 alarm (5~15ppm variable)</td> <td>1 circuit for contact output, C contact (Max AC250V 2 A) delay time 0~5 seconds</td> </tr> <tr> <td>Alarm2 alarm (5~15ppm variable)</td> <td>1 circuit for contact output, C contact (Max AC250V 2 A) delay time 0~600 seconds</td> </tr> <tr> <td>REC (Analog output)</td> <td>DC4-20mA(0-24mA) line resistance less than 750Ω</td> </tr> </table>	VALVE (for three-way valve)	1 circuit for contact output, 1 B contact (Max AC250V 2 A) Supply voltage output	Alarm1 alarm (5~15ppm variable)	1 circuit for contact output, C contact (Max AC250V 2 A) delay time 0~5 seconds	Alarm2 alarm (5~15ppm variable)	1 circuit for contact output, C contact (Max AC250V 2 A) delay time 0~600 seconds	REC (Analog output)	DC4-20mA(0-24mA) line resistance less than 750Ω
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REC (Analog output)	DC4-20mA(0-24mA) line resistance less than 750Ω								
Operation recording function	Power turn-on and off, time of each alarm output/release (record memory 2Mbit) comply with MEPC107(49)								
Piping bore	For sample water inlet, clean water inlet and drain outlet : O.D. of $\phi 8$ or $\phi 10$ with ring joint for copper pipe ($\phi 8$ factory default)	△							
Cable gland	4 pcs($\phi 10.5 \sim \phi 14.5$)								
Water-proof grade	IP = 54								
Coating color	7.5BG 7/2 (Since this color is manufacturer standard, it cannot be changed.)								
Outside dimension weight	W=251 mm × H=283.5 mm × D=122 mm Total weight: approx. 4.8 kg (excluding accessories) (body=approx. 3.0 kg. Sensor unit=approx. 0.6 kg. Solenoid valve unit = 1.2 kg)								

■ Outline dimensions · Material etc

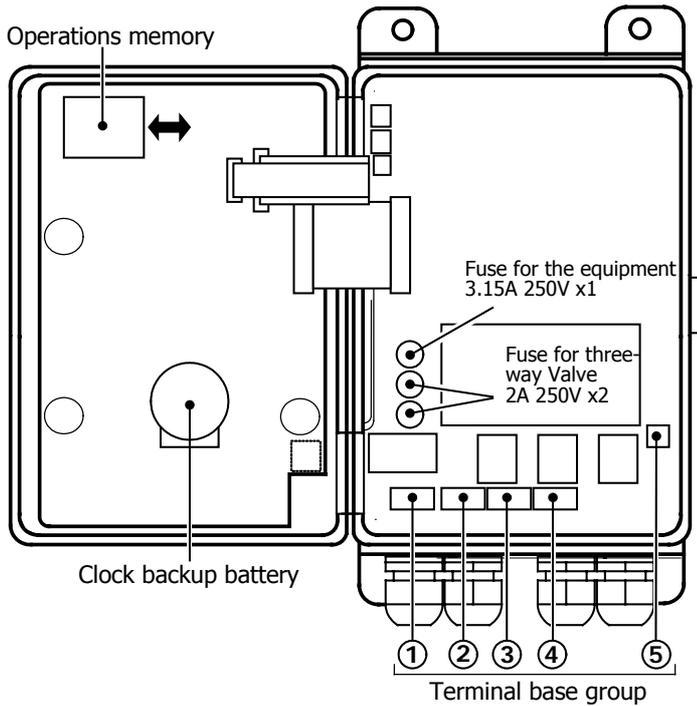


※ A distance of at least 210 mm is required on the left.
This amount is required for replacing the sensor unit or solenoid valve unit.

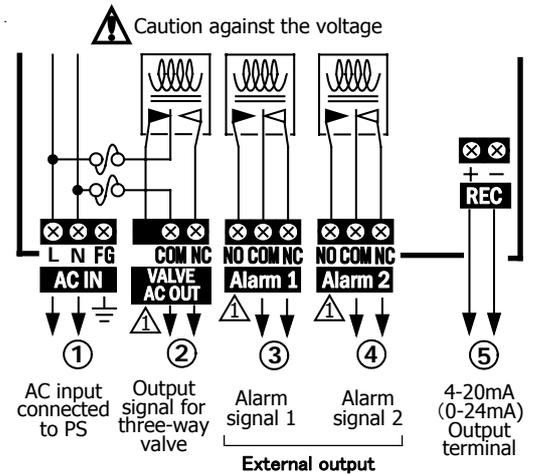


No.	PART NAME	QTY	MATERIAL	REMARKS
①	Sample water outlet	1	C3604	Screwed joint RC 1/4 φ8 or φ10 (φ8 factory default)
②	Sample water filter	1	C3604/SUS304	
③	Sample water inlet	1	C3604	Screwed joint RC 1/8 φ8 or φ10 (φ8 factory default)
④	Clean water filter	1	C3604/SUS304	
⑤	Clean water inlet	1	C3604	Screwed joint RC 1/8 φ8 or φ10 (φ8 factory default)
⑥	drain	1	C3604	
⑦	Wiring ports	4	Polyamide	Cable size φ10.5~φ14.5
⑧	Case cover	1	ADC-12	
⑨	Snap latch	1	C3604	
⑩	Earth screw	1	SUS304	M4

Internal Arrangement Drawing and the Terminal Base Arrangement



Terminal block Alignment and FOCAS-2000 inner connection



※1 All terminal blocks are removable.

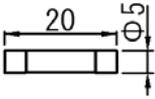
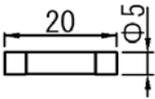
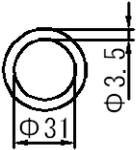
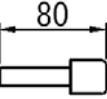
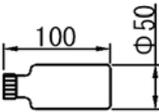
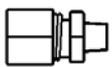
※2 Symbol figures of relay show standby conditions when primary power is supplied.

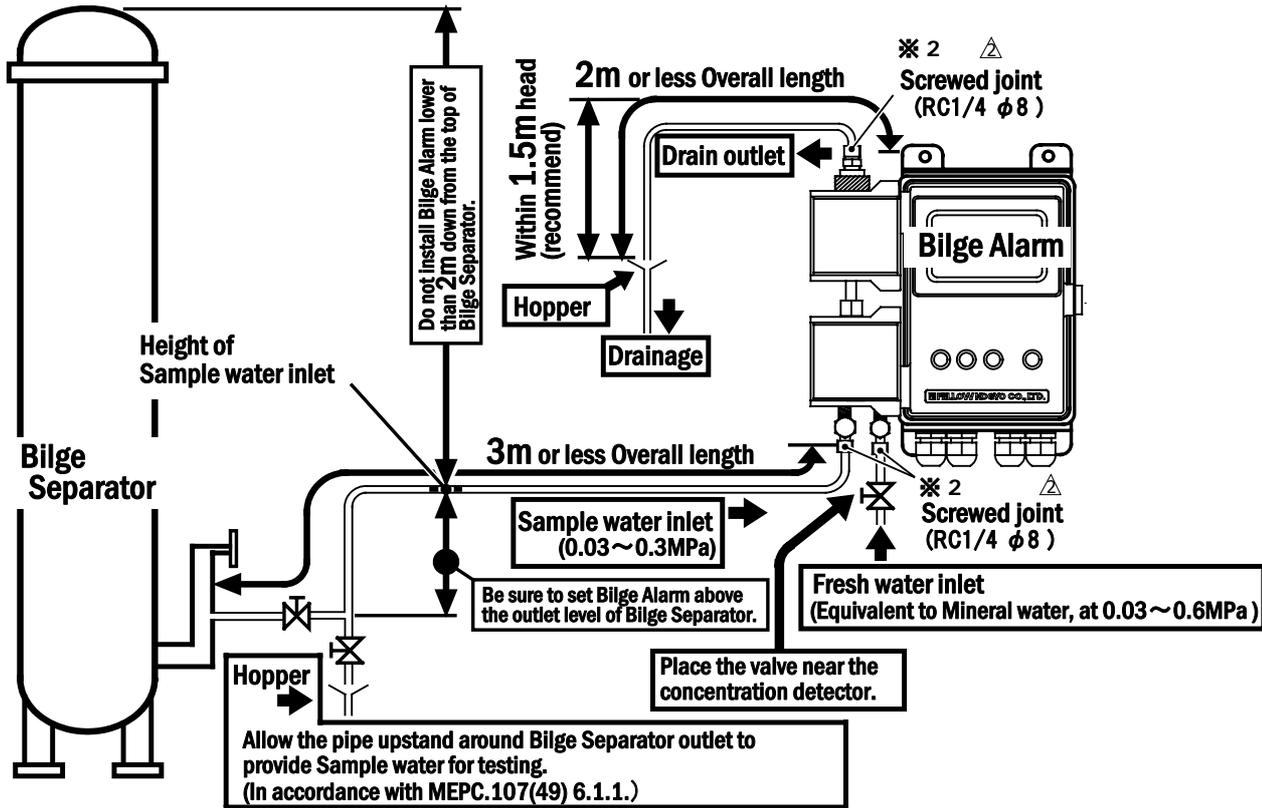
Name	Rating	Remarks
① AC IN	AC90V~240Vrms, 50~60Hz	FG(=frame gland) grounds housing
② VALVE	B contact 250VAC, 2A max. Supply voltage output	Alarm operating point of Valve and Alarm 1 is synchronized. Delay setting is available for Alarm 1 only.
③ Alarm 1	C contact 250VAC, 2A max. Dry contact	
④ Alarm 2	C contact 250VAC, 2A max. Dry contact	Alarm signal 2 (external signal)
⑤ REC	4-20mA (0-24mA) current output	When 20mA is loaded, the line resistance is 750Ω or less

List of contact output of relay, movement of alarm lamp etc

Terminal name·operation conditions etc			When applying current								
			At outage	Operation mode				Washing mode	Setup mode	unit error	
			Primary source no current	Standby mode	Warm up	Under set density value	More than set density value	Over 30ppm Over scale	washing		Customized setup
VALVE	between relay terminal	COM-NC	No output	No output	Supply voltage output	No output					
		NO-COM	Close	Open	※1	Open	Close	※1		Close	
Alarm1	between relay terminal	COM-NC	Open	Close	※1	Close	Open	※1		Open	
		alarm lamp (AL1)	Light off	Light off	Blinking	Light off	Blinking				
Alarm2	between relay terminal	NO-COM	Close	Open	※1	Open	Close	※1		Close	
		COM-NC	Open	Close	※1	Close	Open	※1		Open	
REC	factory default value	unit (mA)	0 (powerOFF)	0	4	Density value	Density value	20	4	0	0
		Value assignable by panel operation (step up by 1mA)	N/A	0~4	N/A	N/A	Density value or 20~24	Density value or 20~24	20~24	0~4 or 20~24	0 or 20~24

※1 Reverse movement of contact output is possible by operating panel switch at setup mode, washing mode, warming up. (However, factory shipments are the same outputs as standby.)

Spare parts		model:FOCAS-2000			item			
oil concentration detector FOCAS-2000 Spare Parts Table							Hull No.	
							Case No.	
No	Part name	Part No.	Sketch	Material	Work-ing	backup	mass (kg)	remarks
1	Fuse for three-way Valve	2000-020		Glass tube	2	2	0.00075	Normal Meltdown type 2A
2	Fuse for the equipment	2000-010		Ceramic tube	1	1	0.00075	Fast-blow type 3.15A
3	Upper lid O-ring	2000-060		FKM	1	1	0.002	4DP-31
4	Drain seal W	2000-070		SUS/NBR	1	1	0.0006	M5
5	Washing brush	2000-030				1	0.01	
6	Washing liquid	2000-040				1	0.15	125mL
7	Φ 10 joint	2000-050		C3604		3	0.05	RC1/4×1 RC1/8×2
CHECK kikuchi	DESIGN Okumura	DRAWIN Okumura	DATE MAR. 09. 2012 APPOINT	TITLE FOCAS-2000 Spare Parts Table				
			SCALE	DRAWING NO 8960-01				



Sample water and fresh water pipes

1. Tubes to be connected to the sample water inlet, fresh water inlet, and outlet should be copper tubes of 8mm or 10mm in outer diameter. ※2
 2. Use fresh water equivalent to mineral water, which is necessary for sensor correction.
 3. Normal operating pressure: 0.03 to 0.3 MPa for sample water and 0.03 to 0.6 MPa for fresh water.
 4. In order to prevent dust contamination from fresh water line, please be sure to carry out cleaning of the line.
- △ ※2 When the Bilge Alarm is shipped from the factory, its connection ports are for tubes of 8mm in diameter (as standard). To connect a 10mm-dia. copper tube, take off φ8 joint and apply seal tape to the threaded part of the copper tube of φ10 joint before coupling the tube to the port.

Restrictions on piping

5. The length from the sample water outlet to the end of piping should be within 2m and the fall should be within 1.5m. Be sure to provide hoppers.
6. Piping length between Bilge Separator and Bilge Alarm should be within 3m. Bilge Alarm should be set above the Outlet height of Bilge Separator. Do not install Bilge Alarm lower than 2m below the top of Bilge Separator. Operation pressure of Bilge Alarm is 0.03MPa –0.3MPa. In consideration of recommended pressure for Bilge Separator, adjust the operation pressure.

Caution:

Be sure to follow the above instructions to run the oil concentration detector normally.