

Modules for Customized Monitoring of pH, DO, Redox Potential and Level

Technology

DASGIP PHPO monitoring modules supply precise monitoring of process parameters such as pH, dissolved oxygen, redox potential and level. The compact modular design guarantees minimal space requirements.

Industry standard pH, DO and redox sensors can be connected. Additionally, all modules provide two connections for Pt100 temperature sensors as well as two universal 4-20mA connections. Temperature compensation can be calculated either via the Pt100 sensors or via the integrated temperature measurement of the DO sensors. All sensors can be easily calibrated in one or two point calibration procedure whereas the calibration values are retained even when the device is switched off. The DO channels include integrated power supply for optical DO sensors.

All 4 channel PHPO modules feature 4 optional conductivity-based level inputs. These inputs can be used for level control during continuous operation and automated anti foam addition combined with the DASGIP multi pump modules MP4 or MP8.

Application

■ Cell Culture and Microbiology

The parallel and compact design combined with highest precision make the PHPO module series the perfect choice for all applications where the comprehensive monitoring, controlling and logging of pH, temperature, redox potential or the level values of fluids is needed.

■ System Integration and Stand-Alone Solution

All DASGIP modules are tried and tested components of the DASGIP Parallel Bioreactor Systems for microbiology and cell culture.

Every PHPO module has its own microprocessor and therefore can be operated either stand-alone and/or integrated into 3rd party systems. The stand-alone



version includes the DASGIP EasyAccess/OPC Software for automatic data logging.

■ Laboratory, Production and Quality Assurance

Whether used in laboratories, in production or as part of quality assurance – the PHPO modules meet highest demands. Highest precision and easy scalability of results is guaranteed even at minimal working volumes.

DASGIP systems directly address important industry programs such as the FDA's 'Quality by Design' approach and the PAT initiative.

Benefits

DASGIP PHPO modules boost precise individual control and high process automation at the same time. For instance, integration into the DASGIP system allows automated control of pH, dissolved oxygen, redox potential or level. Users benefit from timesaving parallel sensor calibration procedures. The software allows numerically and graphically display of all measurement values as well as continually data logging. The saved data is immediately accessible for evaluation using e.g. Microsoft Excel[®]. Additionally, OPC connectivity enables the integration into closed monitoring and feedback control loops as well as data transfer to 3rd party applications like historians.

Modules PHPO Series

Quality System certified by DQS ■ DIN EN ISO 9001 ■ Reg.-No. 63431

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Modules PHPO Series

	Common Features	PH16	PH4PO4 (L)	PH8PO8	PH4RD4 (L)	PH8RD8	PH4PO4 RD4(L)
Module							
Dimensions (WxDxH)	300 x 320 x 190 mm	✓	✓	✓	✓	✓	✓
Ambient Conditions	5°C to 40°C; max. 80% humidity	✓	✓	✓	✓	✓	✓
Power Supply	110 to 240 V _{AC} 50/60 Hz	✓	✓	✓	✓	✓	✓
Weight in kg		8,6	7,5	8,6	8,1	8,4	8,4
pH Measurement							
Channels	0..16	16	4	8	4	8	4
Measurement range	pH 0 .. pH 14 (+/-0.01) -472 mV .. +472 mV	✓	✓	✓	✓	✓	✓
Calibration	One or two point	16	4	8	4	4	4
Temperature compensation	Manual; Pt100, -25..116°C (+/-0.1K); NTC, -10..140°C (+/-0.2K),	2 -	2 4	2 8	2 -	2 -	2 4
pO2 Measurement							
Channels	0..8	-	4	8	-	-	4
	Integrated power supply for optical DO sensors	-	✓	✓	-	-	✓
pO2 measurement range	0 .. 500% DO 0.. 400nA (+/- 0.5)	-	✓	✓	-	-	✓
Calibration	One or two point	-	✓	✓	-	-	✓
Temperature Compensation	Manual; Pt100, -25..116°C(+/-0.1K); NTC, -10..140°C(+/-0.2K)	2 -	2 4	2 8	2 -	2 -	2 4
Temperature Measurement							
Channels	Pt100 NTC	2 -	2 4	2 8	2 -	2 -	2 4
Measurement range	Pt100 -25°C .. 116°C (+/- 0.1°C), 90 .. 160 Ohm NTC -105°C .. 104°C (+/- 0.2K), 1.7 .. 10.000 kOhm	✓ -	✓ ✓	✓ ✓	✓ -	✓ -	✓ ✓
Calibration	One or two point	✓	✓	✓	✓	✓	✓
Redox Potential Measurement							
Channels	0 .. 8	-	-	-	4	8	4
Redox potential measurement range	-2000 .. 2000mV (+/- 1mV)	-	-	-	✓	✓	✓
Calibration	One point						
Level Measurement							
Channels	0 .. 4	-	4	-	4	-	4
Level measurement range	0 .. 20 mS	-	✓	-	✓	-	✓
Aux							
Channels	2	2	2	2	2	2	2
Measurement range	0/4 .. 20mA or 0 .. 10V	✓	✓	✓	✓	✓	✓

All technical data is subject to change without prior notice