One

SINGLE WALL FERMENTERS/ BIOREACTORS

SOLARIS
BIOTECH SOLUTIONS

SINGLE WALL FERMENTERS/BIOREACTORS

one

The **ONE** platform is ultimate Solaris entry level system. It offers multiple autoclavable vessel sizes and designs from 2 up to 10 L total volume. Various aspect ratios and thermoregulation designs are also available. The system is 100% configurable, built with high quality components, and offered at a competitive price.

ONE typical applications includes the following:
Education & Basic research
Scale-up and scale-down studies
Process development and optimization

One can be used for:
Biopharmaceutical
Biofuels
Food industry
Bioremediation
Bioplastic
Cosmeceutical
Nutraceutical

WHY TO INVEST IN THIS PRODUCT

The essential solution shaped on your needs

Entry Level

Fully configurable

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Benefits

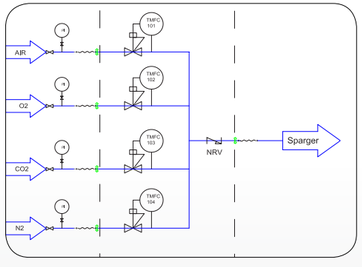
LEONARDO software license: smart controller designed to provide an high level of automated management of the fermentation/ cultivation processes
Batch, Fed batch or continous processes

Powerful/ Accurate **brushless motor**, from 1 to 2000 RPM. Online absorbed Torques (Nm) and Power (W) measurements obtaining an indirect density indication of the culture broth.

pH, dO2, antifoam, level and temperature controls available

LEDA safe sterile sampling system

Different gas mixing strategies with up to 5 TMFC or up to 4 rotemeters



Safety: pressure relief valve included in each unit

Stainless-steel cube PCS

Up to n. 4 WM 114 Watson Marlow fixed speed pumps available

After sales assistance

5 different volumes and 2 different ratio H/D

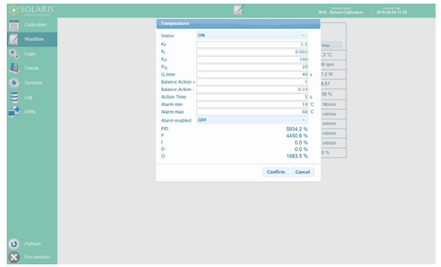
Feeding options: single or multi feed connector

Single wall vessel, with heating blanket and cooling finger (available options)

Modbus Digital sensors

Why a digital sensor?

Digital sensors (pH, dO2) have been integrated to the Solaris PCS and Leonardo controlling software, giving the user many benefits over traditional analog sensor outputs. Such benefits include a robust communication protocol not susceptible to signal loss, in-software sensor diagnostic information, parallel calibration/batch calibrations and more.



Sensor life traceability

Reducing background noise

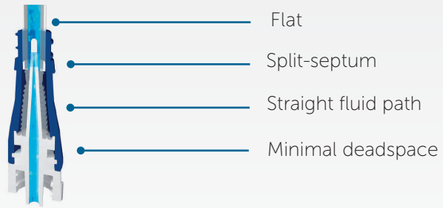
GAS MIXING

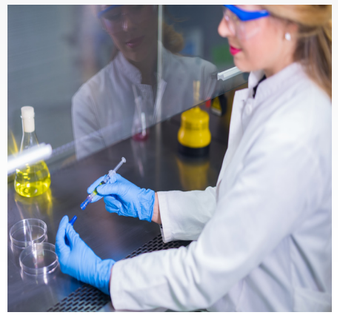
Configure your system with a selectable number of TMFCs (up to 5) and/or rotameters (up to 4).

- Various agitator and baffle designs available
- Automatic gas mixing algorithms
- Toro, sintered and other spargers available

LEDA sterile sampling system

Technical specifications	
Material	VALOX resin (external) silicone (internal)
Autoclavable	121-133°C (up to 30 minutes)
Residual volume	0.04 mL
Flow rate	165 mL/minute





- Sterile single use sampling system up to 180 sterile sampling per batch.
- Needlefree connector is designed to reduce the risk of contamination during sampling.
- The sterile combination of a syringe (3-5-10-30 ml) and a non return valve guarantees the sterility after sampling until the next use

Smart PCS

- Compact PCS
- 35 x 35 x 35 cm
- Lean design
- Software license on USB flash key

Leonardo 3.0

USER-FRIENDLY SOFTWARE

Solaris controlling software offers a simply laid out, yet powerful platform for experimental design planning and process control. The graphical user interface enables the intuitive selection and adjustment of control functions.
Extracted data is compatible with Window Excel but, in addition, Solaris offers a platform where fermentation data can be easily exported in real time and thus managed. This software license is included in the supply and can be installed on an unlimited numer of the client's PC or laptops.

Features:

Home with Multi-level password protection

Workflow settings (before cultivation, cultivation, custom phases)

Synoptic page with manual operation of all the actuators (pumps, valves etc.)

Continuous trend graphs representation to track, print and export data on up to 6 processes and set point variables.

Different dynamic zooms and configurations in a time frame that can be set interactively

Cascade control (optional) and profile programs

Pumps configuration and calibration

On line parameters calibration

PID setting

After sale assistance

Possibility of saving up to recipes for repeat usage

Print-out of hard copy of each screen

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Data sheet

Vessel					
Solaris Code	**One 2.0**	**One 4.0**	**One 6..5**	**One 8.0**	**One 10.0**
Production Code	onest2.0	onest4.0	onest6.5	onest8.0	onest10.0
Total Volume (L)	2,00	4,00	6,50	8,00	10,00
Ratio D/H	1:3,0	1:3,0	1:2,5	1:3,0	1:3,0
Min. Working Volume (L)	0,35	0,60	1,10	1,10	1,60
Max. Working Volume (L)	1,40	2,80	4,50	5,50	7,0
Max. temperature	70°C				
Operating pressure	< 0.5 bar				
Headplate Ports (n.10 in One 2.0; n.13 in the others)	10: n. 1 Agitation Group, n.1 Gas Sparger, n.1 Gas Overlay, n.1 Gas Out/Condenser, n.1 Sampling/Harvesting, n.1 Temperature, n.1 Multifeed, n.2 Sensors DN12, n.1 Spare. 13: n.1 Agitation Group, n.1 Gas Sparger, n.1 Gas Overlay, n.1 Gas Out/Condenser, n.1 Sampling/Harvesting, n.1 Sterile Sampling System, n.1 Temperature, n.1 Multifeed, n.2 Sensors DN12, n.3 Spare.				
Design	Borosilicate glass vessel (single wall)				
Materials	Borosilicate Glass and AISI 316 L				

Sensors length (mm)					
pH	325	425	425	425	425
dO_2	325	425	425	425	425
Dimensions for autoclave (with Condenser)					
Height (mm)	610	705	705	790	790
Diameter (mm)	275	285	315	315	335

Stirring					
Drive	Brushless Motor				
Speed (rpm)	1-1900	1-1800	1-1700	1-1700	1-1700
Nominal Torque (Nm)	0,9	0,9	0,9	1,1	1,1
Impellers	Select from: Rushtons impellers, Marine Impellers, Pitched blade				

Thermoregulation					
Control	PID Control - Accuracy 0,1 °C - Jacketed with n. 2 Electric Cartridge Heaters and cooling valve				
Total Heater Power (W)	400	600	700	700	700

Gas Control & Gas Mixing	
Sparger and overlay Gas Control	TMFC
Gas Mixing (Air,CO_2,O_2,N_2)	n.1 TMFC (included in entry level) + n.4 solenoid valves or + n. of additional TMFC (up to n.4)
Sparger type	Select from: Toro type (ring), sintered microbubbling - both provided with 0,22 µm sintered filter
Gas Out	n. 1 Condenser + 0,22 µm sinterized filter

Peristaltic Pumps
up to n.4 Watson Marlow type 114, fixed speed, max. 60 rpm, volumetric flow 0,5-51 ml/min, function assignable from software

Controller	
Master Control Module	35 x 35 x 35 cm
HMI with Leonardo software	Licence

Controls

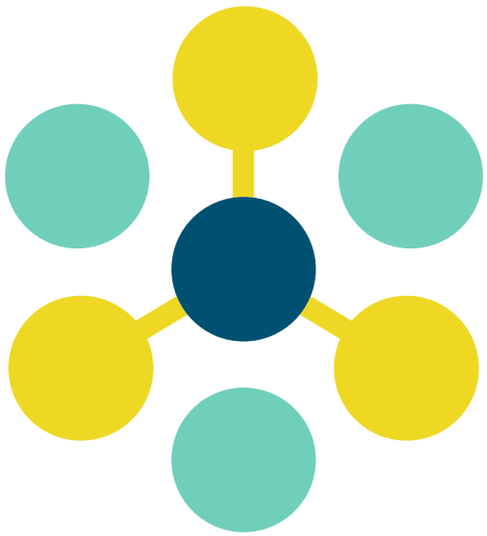
INTEGRATED IN THE PCS

Temperature	
Sensor	PT100
Accuracy	0,1 °C
Control system	Measuring resident in Leonardo 3.0 software
Control range	0 - 70°C
pH	
Sensor	Digital sensor
Sensitivity	57 to 59 mV/pH
Control system	Measuring resident in Leonardo 3.0 software
Control range	0 - 14
Operation temperature	0 - 130°C
Pressure range	0 - 6 bar
dO_2	
Sensor	Digital Optical sensor
Accuracy	±0.05%-vol, 21±0.2%-vol, 50±0.5%-vol
Control system	Measuring resident in Leonardo 3.0 software
Control range	0,05 - 300% air saturation
Operation temperature	-10 - 130°C
Pressure range	0 - 12 bar
Antifoam/Level	
Sensor	Solaris sensor
Control	Measuring resident in Leonardo 3.0 software

Chiller

- Optionally ONE can be equipped with a chiller for heat removal from your culture minimizing lab water usage
- Using this system you don't need a water supply line in your lab
- Cost-effective cooling of fermenters
- Easy operation
- Refregerant level monitoring

Chiller data sheet	
Working temperature range	-10°C / +40°C
Temperature stability	±0.5
Power consumption	0.7 kW
Filling volume range	2-8 L
Cooling output at 20°C measured with ethanol	0.25-0.60 kW
Cooling output at 10°C measured with ethanol	0.20-0.50 kW
Cooling output at 0°C measured with ethanol	0.15-0.36 kW
Cooling output at -10°C measured with ethanol	0.09-0.15 kW
Pump pressure max.	0.35-1.30 bar
Pump flow max.	16-35 L/min.



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