

Serenus 166/390 Air C

- High temperature PEM technology (op. temp. 100-175°C)
- Very high system efficiency measured up to 57%, 40% at nominal load
- Simple system design – low pressure, air cooled and no humidification required
 - High fuel flexibility and CO tolerance
- Embedded control software for easy and safe module operation
 - All required system components included - plug & play



EUR 8.995

For Serenus 166 Air C module

Includes

- Power relay
- Emergency stop button
- Power supply
- Blower for air supply/cooling built in
- CAN USB interface to PC
- H₂ proportional valve
- H₂ purge valve
- H₂ over/under pressure relief valves
- Inlet & outlet piping (air & H₂)
- H₂ pressure sensor

Specifications

Reactant characteristics

		Parameter	Value/Criteria
Cathode/cooling supply		Atmospheric air [°C]	0-40
Anode supply	Pure H ₂	Fuel	Industrial grade H ₂ (99.9%)
		Inlet pressure ¹ [mBar]	50-75
		Min stoichiometry ²	1.15
		Max inlet temperature [°C]	175
	Reformate ⁵	Min H ₂ content	25%, wet basis
		CO% ³	<5%
		Min stoichiometry ⁴	1.15
		Max inlet temperature [°C]	175
Operation		Start-up temperature [°C]	80
		Operating temperature [°C]	100-175 (max) 140-170 (recom.)

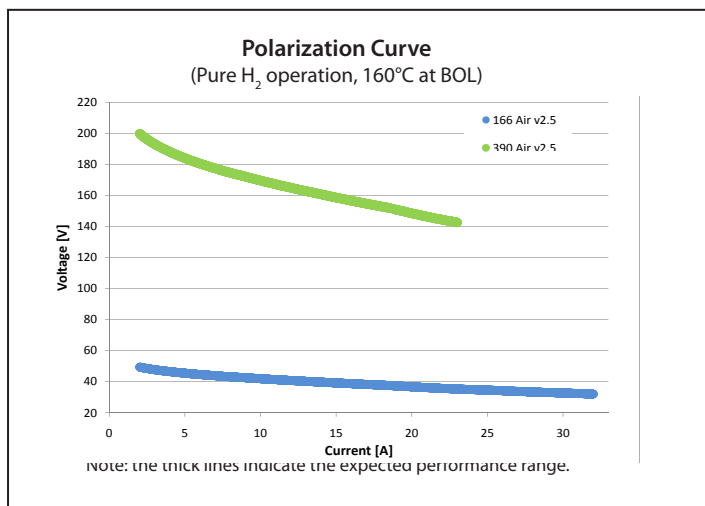
¹ Dead-end configuration (closed anode exhaust)

² Continuous feed configuration (open anode exhaust)

³ Depending on H₂ concentration

⁴ Higher stoichiometry for higher CO concentrations

⁵ The Eval. Kit is recommended for use on pure H₂ but with small changes can be adapted to use on reformat. Contact us regarding this option



Electrical characteristics (Stated for beginning of life (BOL))

Parameter	166 Air C, v2.5	390 Air C, v2.5
Nominal power ¹ [W]	1000	3200
Nominal voltage ^{1,2} [V _{DC}]	31.5	140
Nominal current ^{1,2} [A]	32	23
Idle voltage [V _{DC}]	≈50 (spikes to 65)	≈200 (spikes to 267)

¹ Definition is based on operation at 160°C, with pure H₂ and 20°C cooling air. Other conditions will shift nominal/peak load points

² ±5% variation

* Contact us regarding applications requiring short duration peak power

Mechanical characteristics

Parameter	166 Air C, v2.5	390 Air C, v2.5
Number of stacks	1	3
Cells/stack	65	89
Height [±2mm]	178	178
Width [±2mm]	159	375
Length ¹ [±2mm]	523	700
Weight ² [kg]	≈7	≈22

¹ Length excluding connectors on front and rear panel

² Weight of the module without the balance of plant components

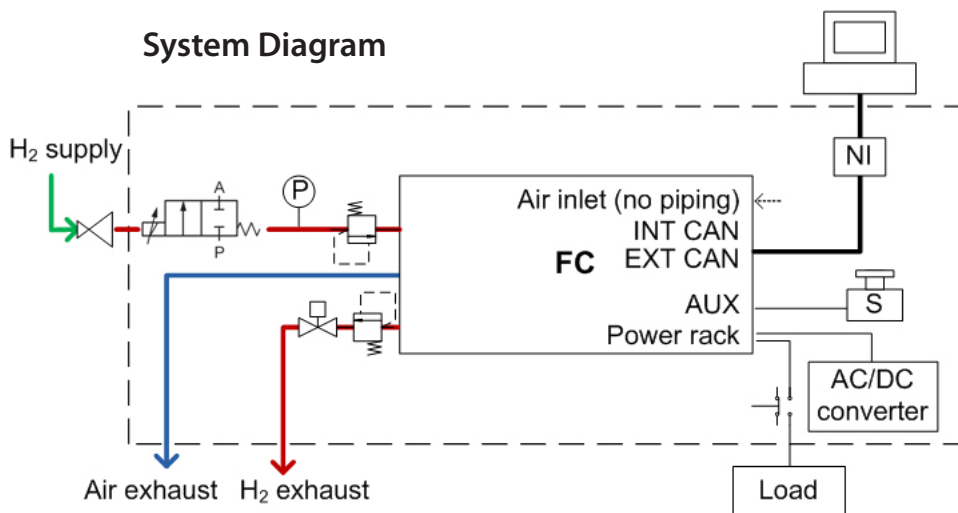
System parasitics

Parameter	Power [W]
Blower @ nominal load	≈35
Power relay coil	5 (max)
Proportional valve/purge valve	4 (when open)
EFCU (embedded FC control unit)	2 (max)
Heating element/stack	100 (max)

System Diagram

Legend

- Solenoid valve (purge)
- H₂ pressure reduction
- PTFE tubing (12mm OD)
- Aluflex pipe, 2m
- Wiring
- Piping
- NI CAN interface
- Power relay
- Proportional valve
- Pressure sensor
- Pressure relief valve



Note: components outside the dashed box are not included in the Evaluation kit.