

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



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	Min H ₂ content	25%, wet basis
		CO% ³	<5%
Min stoichiometry ⁴		1.15	
Operation	Operating temperature [°C]	100-175 (max range)	
		140-170 (recom range)	

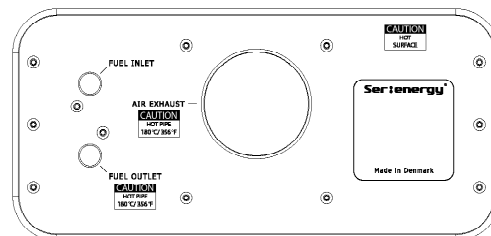
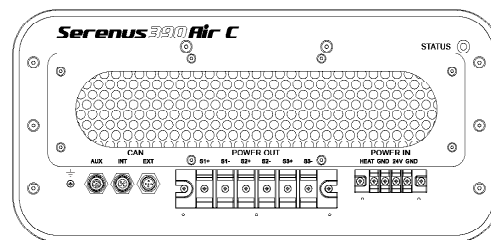
¹ Dead-end configuration (closed anode exhaust)

² Continuous feed configuration (open anode exhaust)

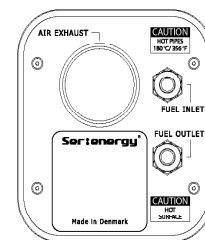
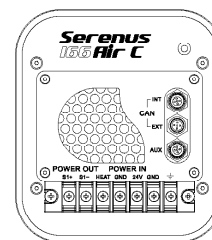
³ Depending on H₂ concentration

⁴ Higher stoichiometry for higher CO concentrations

Serenus 390 Air C v2.5 - Front & Rear panel connections



Serenus 166 Air C v2.5 - Front & Rear panel connections



Typical 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 [±2mm]	523	700
Weight [kg]	≈7	≈22

¹ Length excluding connectors on front and rear panel

System parasitics

Parameter	Power [W]
Blower @ nominal load	≈35W
Heating element/stack	100W (max)
EFCU (embedded FC control unit)	2W (max)

