



Native Three-Phase QUAD Microinverter

Smartest | Most Reliable | Lowest Cost

The QUAD-2000 native three-phase microinverters are uniquely designed to run both grid connected and standalone water pumps. The inverter is suitable to run any type of electric motors (Induction, BLDC, and PMSM). The QUAD microinverters offer parallel operation for meeting any system power rating. With 4 individual DC input channels and independent maximum peak power tracking, it is the most compact and lightweight three-phase microinverter in the PV industry.

Four Panels, One Inverter

The Three-Phase Quad-2000 microinverter uses patented technologies that eliminate the use of short-life electrolytic capacitors, providing high reliability, and a 25-year design life.



Based on a Per-Watt rating, the Quad has the lowest microinverter cost, the highest power output, the highest power density, and the lowest weight in the industry.

- **Maximum energy harvest**
- **Safe operation – all AC , with no high-voltage DC**
- **75% reduction in cable costs**
- **Best in class reliability**
- **No single-point of failure**
- **Cloud-based performance monitoring for each panel**
- **Grid Connected**
- **Solar water pump MPP tracking compatible with most of water pumps**
- **Plug and Play technology**

Model:
Q2000-4301
3 Conductors

Input (DC) Specifications		unit		
DC Input Power (Module STC)	W	2200		
Number of channels		4		
PV Panel Rating (Module STC)	W	680+ W _p per channel		
Input Power Clipping		None		
Maximum Input DC Current	A	16 per channel		
Full Power MPPT Voltage Range	V	34 - 45 per channel		
Extended MPPT Voltage Range	V	20 - 59 per channel		
Start-up Voltage	V	19 per channel		
DC Connection Type		MC4 compatible panel receptacles		
Output (AC) Specifications				
Grid Connection Type		380V L-L from 3-φ	400V L-L from 3-φ	480V L-L from 3-φ
Operational Voltage Range	V	315 - 450	315- 450	422 - 528
Maximum Continuous Power ¹	W	2000 @ 52°C	2000 @ 60°C	2000 @ 60°C
Nominal Output Frequency	Hz	50		60
Operational Frequency Range	Hz	47.5 – 50.5 default		59.3 – 60.5 default
		Extendable according to various standards		
Power Factor		> 0.99 default. Programmable from 0-0.99 leading/lagging		
Output THD	%	< 2, default		
Inrush Current	A	< 8		
Output Wiring Type		14 AWG		
Output Connection Type		T5 AC micro male connector 98053		
Safety and Protection				
Input Reverse Voltage Polarity Protection		Yes, Polarized PV Connectors		
Anti-Islanding Protection		Yes, programmable to meet various standards UL1741, UL1741 SA, Rule 21, IEC		
Integrated GFDI		Yes		
Isolation		Galvanic isolation		
Abnormal Voltage/ Frequency Trip Time		Less than 200ms		
Regulatory				
Regulatory Certifications		UL1741, UL1741 SA/Rule 21/ HECO/Rule 14H, IEEE1547, IEEE1547.1, CSA22.2 No. 107.1, FCC Part 15-Class B. IEC62109-1:2010, IEC 62109-2:2011, IEC 61000-6-3:2007. EN50549-1:2019		

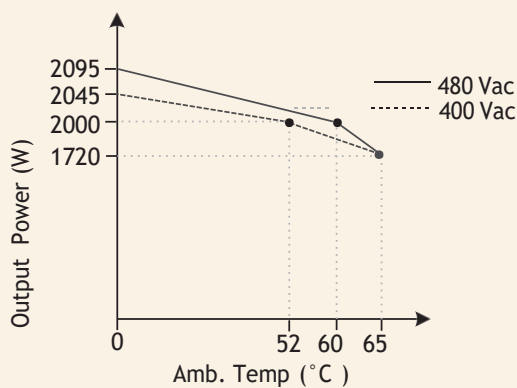
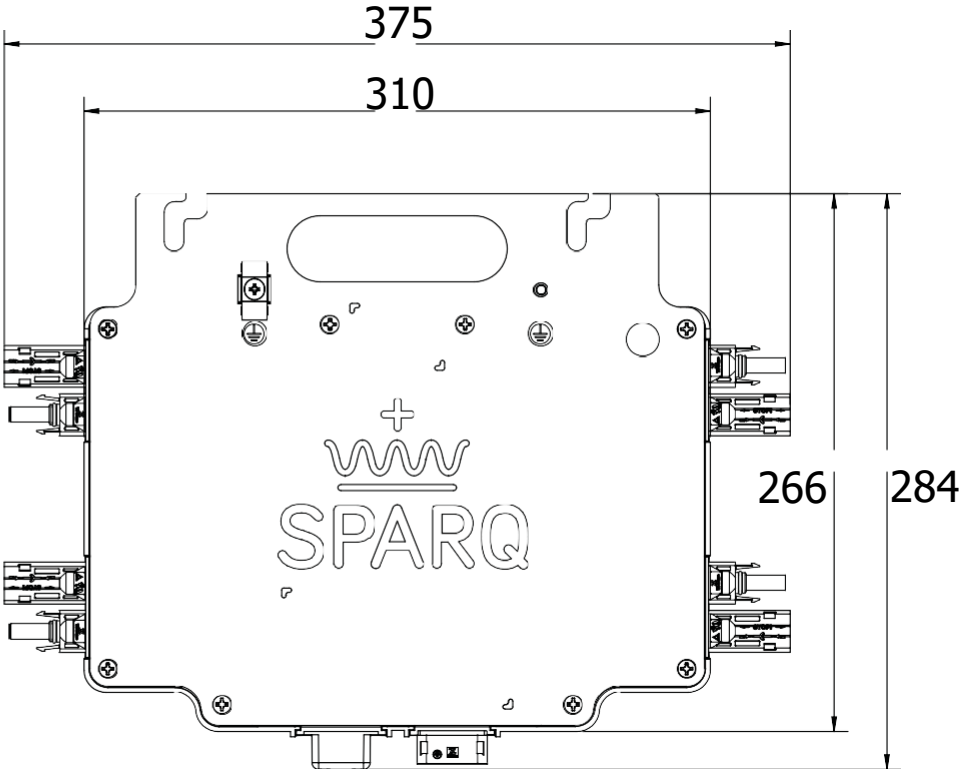
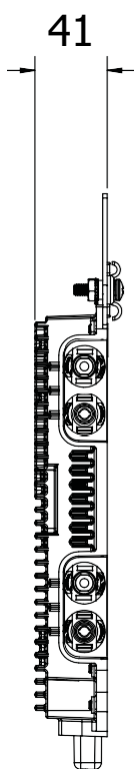


Fig. 1: Q2000-4301 AC Output Power vs Temperature Profile.

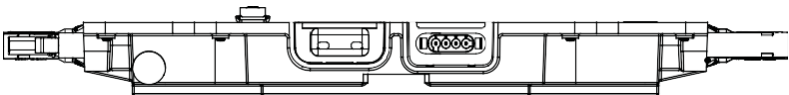
¹ For higher ambient temperature, please refer to the graphs shown in Fig. 1.

Efficiency and Operating Performance			Unit
Maximum Efficiency	%	97.5	
CEC Efficiency	%	97	
MPPT Efficiency	%	Static: 99.85 – Dynamic: 99.8	
Stand-by Consumption	mW	< 30	
Communication			
Monitoring System		Wireless, Web-based monitoring through SparqLink and SparqVu	
Environmental			
Ambient Operating Temperature Range	°C (°F)	-40 to +65 (-40 to +149)	
Relative Humidity	%RH	0 – 100 condensing	
Mechanical			
Enclosure Rating		NEMA 6, IP-67	
Cooling		Natural Convection	
Dimensions (H x W x D)	mm (in)	41 x 217 x 300 (1.6 x 8.5 x 11.8)	
Weight	kg (lb)	4 (10)	
Recommended Mounting		Rack mount with two M8, 1/4", or 5/16" bolts	
Warranty			
Standard Limited Warranty		12 Years	
Extended Warranty		25 Years	
Programmable Parameters for Smart Grid			
Voltage Ride-through	Under Voltage	Maximum 4 levels with programmable ride-through time	
	Over Voltage	Maximum 3 levels with programmable ride-through time	
Frequency Ride-through	Under Frequency	Maximum 6 levels with programmable ride-through time	
	Over Frequency	Maximum 4 levels with programmable ride-through time	
Reconnect Time		Programmable wait time of 0-5 minutes	
Power Ramp Rate		Programmable on both active and reactive power	
Volt-VAR		Programmable VAR injection and power factor limit	
Frequency-Watt		Programmable active power curtailment with an adjustable rate of Watt per Hz	
Motor Mode		Unit	
Operating Mode Selection		Manual, (motor mode or grid mode)	
Output Voltage Range	V	400 (Nominal), 0-460 L-L from 3ϕ	
Output Frequency Range	Hz	0 to 130 (Programmable)	
Frequency Accuracy		0.1%	
Parallel Operation		Yes	
Acceleration time	s	10s, linear acceleration (Programmable)	
Load characteristics		(torque)-(speed) ²	
Type of Motor		Induction, BLDC, PMSM	
Monitoring		Output frequency, output current, output voltage, input power, under-voltage, temperature, grid/motor detection	
Protective Function		Over-current, over-voltage, under-voltage, speed excessive, dry run protection	

Mechanical Specifications (inverter)

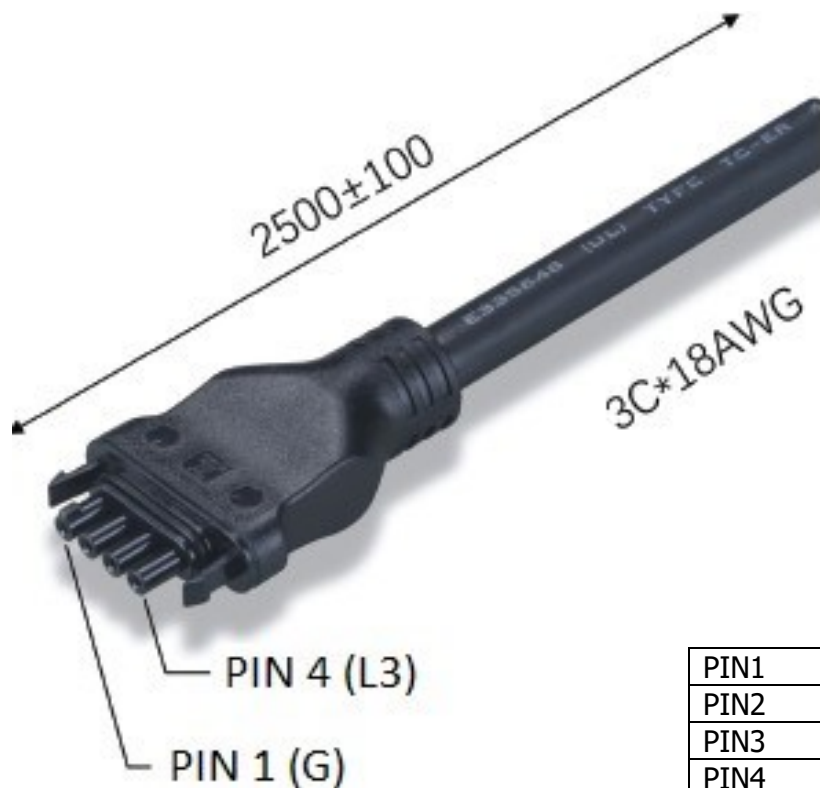


All dimensions in mm



Mechanical Specifications (cables)

Ti-Lane T5 free connector female 65069-16



PIN1	G: Empty
PIN2	L1: Wire color Red
PIN3	L2: Wire color Yellow
PIN4	L3: Wire color Blue

All dimensions in mm



AC Cable from T5 female to open, 3C, AWG 18

Region	Conduct Number	Colour Code	Length	Ti-lane P/N
IEC	3C	L1:Red; L2:Yellow; L3: Blue	2m	65069-14
IEC	3C	L1:Red; L2:Yellow; L3: Blue	2.5m	65069-16
IEC	3C	L1:Red; L2:Yellow; L3: Blue	4m	65069-15

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