

Enphase Energy Systems Control cable specification

Applicable region

- North America

Overview

Enphase Energy Systems with the IQ Battery 5P require control wiring between the IQ System Controller 3/3G, IQ Battery 5P, and either the IQ Combiner 5/5C or a Communications Kit 2 (if using a standalone IQ Gateway/Envoy S-Metered).

Refer to the Quick Installation Guides (QIGs) for the respective products on the [Documentation Center](#) for guidance on control cable stripping, termination onto the header, and the common wiring scenarios for an Enphase Energy System.



NOTE: The Enphase Control (CTRL) cable complies with UL 3003, UL 1277, and UL 83 standards. This cable (SKU: CTRL-SC3-NA-01) has optimal impedance and has been validated for optimal system performance. Third-party cables may not have the correct characteristic impedance and may not work reliably. Enphase cannot guarantee performance when a third-party control cable is used.



NOTE: The total length of control wiring across the system cannot exceed 250 feet to ensure the system operates as per specifications.

Enphase Control cable specifications

The following table lists the Enphase CTRL cable specifications.

Model number	
Reseller	Enphase Energy Inc.
Enphase Energy SKU	CTRL-SC3-NA-01 (1 quantity = 1 spool of 500 ft)
Manufacturer	Jiangyin SINBON Electronics Co. Ltd.
Manufacturer part number	A8921065-D
Description	
UL, DG, TC, 18AWG (7/0.385BS) * 4C + D + AM, OD = 7.80 mm, 90°C 600 V, PVC	

Cross section	
Jacket extrusion	
Jacket material	PVC
Jacket diameter	7.80 ±0.30 mm
Minimum average thickness	1.14 mm
Surface	Matte
Marking	(UL) Type TC and DG 600V 90C dry/wet 4/C 18AWG 90C jacket -40C oil res I sunlight resistant FT4 Jiangyin SINBON Electronics Co., Ltd. YYMM YY-Year MM-Month
Color	Black
Jacket characteristics	
Maximum conductor DC resistance (20°C)	Core A: 21.8 (Ω/km)
Operating temperature	-40°C to 90°C
Temperature meeting	90°C (dry or wet)
Rated voltage	600 V
Oil resistance I (IRM 902)	UL1277 & UL3003 (listed under SINBON Electronics)
UV resistance	UL 1581 (720H) (listed under SINBON Electronics)
Cold bend (-40 ±2°C × 4 hours)	UL1277 & UL3003 (listed under SINBON Electronics)
Flammability test	FT4 (listed under SINBON Electronics)
Impedance	Minimum 50 Ω (core-core)
RoHS and Reach compliant	Yes
Conductor (A) characteristics	
Conductor AWG	18 AWG (7 mm/0.385 mm), bared stranded copper

Primary number	4C
Insulation (B) characteristics	
Insulation B material	PVC (material equivalent to THWN -2 type)
Minimum average thickness	0.38 mm
Insulation diameter	1.95 ±0.15 mm
Color	<ol style="list-style-type: none"> 1. Black 2. Red 3. Blue 4. Orange <p>Refer to the Cross section figure.</p>
Insulation (C) characteristics	
Insulation C material	Nylon
Minimum average thickness	0.10 mm
Insulation diameter	2.20 ±0.15 mm
Color	<p>Translucent</p> <ol style="list-style-type: none"> 1. Black 2. Red 3. Blue 4. Orange <p>Refer to the Cross section figure.</p>
Assembly	
Pitch	90 ±20 mm
Drain wire (D)	18 AWG (16 mm/0.254 mm), tinned stranded copper (pitch 28 ±5 mm)
Al-mylar (overlapping, %) Foil facing in	≥25% (50 μ)
Application and warranty	
Application	Standard for electrical power and control tray cable
Manufacturer warranty	12 months from the date of manufacturing

Revision history

Revision	Date	Description
TEC-00007-1.0	December 2023	Initial release.