

# 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 IQ Combiner 5/5C or Communications Kit 2 (if using a standalone IQ Gateway/Envoy S Metered).

Refer to the quick install 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:** 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 per specifications.

## Enphase Control cable specifications

The following table lists the Enphase Control 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, 18 AWG (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

<b>Conductor (A) characteristics</b>	
Conductor AWG	18 AWG (7 mm/0.385 mm), bared stranded copper
Primary number	4C
<b>Insulation (B) characteristics</b>	
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"> <li>1. Black</li> <li>2. Red</li> <li>3. Blue</li> <li>4. Orange</li> </ol> Refer to the <a href="#">Cross section</a> figure.
<b>Insulation (C) characteristics</b>	
Insulation C material	Nylon
Minimum average thickness	0.10 mm
Insulation diameter	2.20 ±0.15 mm
Color	Translucent <ol style="list-style-type: none"> <li>1. Black</li> <li>2. Red</li> <li>3. Blue</li> <li>4. Orange</li> </ol> Refer to the <a href="#">Cross section</a> figure.
<b>Assembly</b>	
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)
<b>Application and warranty</b>	
Application	Standard for electrical power and control tray cable
Manufacturer warranty	12 months from the date of manufacturing

## Revision history

Revision	Date	Description
TEC-00007-2.0	March 2024	Added an image in the “Enphase Control cable specifications” section and made editorial updates.
TEC-00007-1.0	December 2023	Initial release.