

MICRO-0.25/0.3-I-OUTD-US-208/240 - QUICK INSTALLATION GUIDE



This Quick Installation Guide is offered in addition to the full Technical Manual which can be found on the Power-One Renewable Energy website at: <http://www.power-one.com>.

The installation is to be done by a qualified installer, normally a licensed electrician or contractor, according to the applicable local code regulations (National Electric Code (NEC), Canadian Electric Code (CEC), and other).

The two models of the MICRO are delineated by the maximum output power (0.25 kW or 0.3 kW). Each version is also available in either a 240Vac split phase or 208Vac single phase AC grid connection.

This document applies only to the inverter models listed below. All model dimensions are 15.0”H x 9.7”W x 1.37”D and weigh 3-1/2 lb (1.65kg).

- MICRO-0.25-I-OUTD-US-208/240 - 250 Watts Output power
- MICRO-0.3-I-OUTD-US-208/240 - 300 Watts Output power

The nameplate shown below is affixed to the inverter and provides the following information:

Product Origin	Model Name	Certification	DC Rating	AC Rating	Environmental Rating	Serial Number	MAC Address

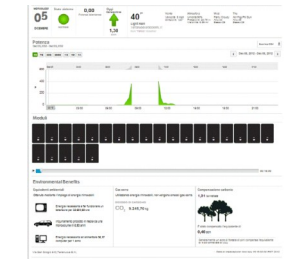
AURORA MICRO® Inverter



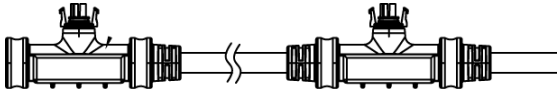
Aurora CDD is necessary for the Micro monitoring and data collection



Aurora Easy View Web Portal provides remote access via internet for system monitoring.

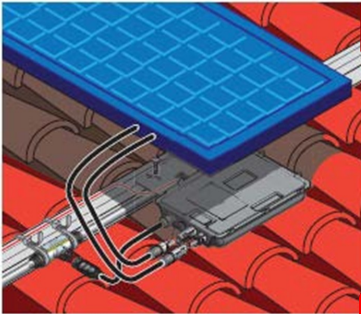


The AC-TRUNK-BUS cable available in three configurations depending on the type of installation and use of the PV panel. The installer may cut the cable to the length needed for the specific installation.



1

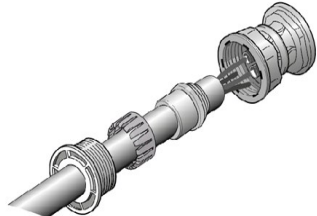
Installation of the equipment is based on the system design and the place in which the equipment is installed. When choosing the place of installation, comply with the following conditions: Install MICRO inverter underneath the photovoltaic modules in the shade, otherwise the inverter could undergo derating. Maintenance or replacement of the device could require the technician to dismount the photovoltaic module mounted on the top of the MICRO inverter, ensure distances are correct for normal control and maintenance.



4

Fit the appropriate AC-TRUNK END CAP on the unused ends of the AC-TRUNK cable as follows:

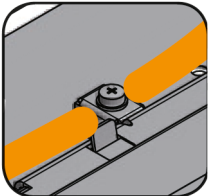
- Fit the ring nut and gasket around the cable to terminate.
- Strip 50 mm/2” of the external insulation and separate each conductor.
- Insert the conductors inside the cap to block them.
- Insert the gasket into the cap with slight pressure.
- Tighten the ring nut to the correct pressure on the gasket (max.2.45Nm/1.8 ft-lbs).
- Secure the section of the terminated cable to the frame with cable ties.



2

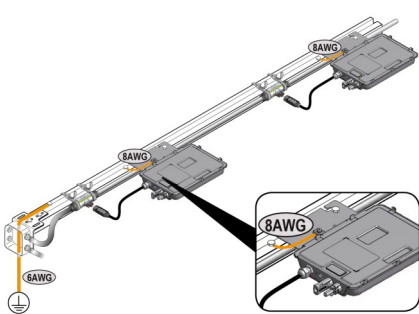
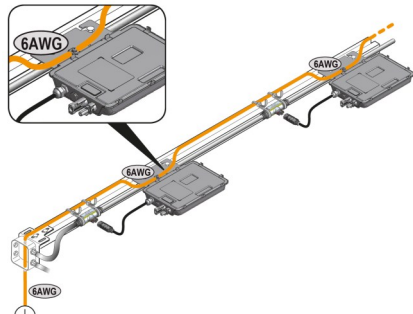
Run the AC cable along the frame structure provided for installing the photovoltaic modules. Secure the MICRO inverter to the photovoltaic module frame with the logo side facing downwards.

The inverter and photovoltaic modules must be connected to an equipment grounding conductor. The inverter must be earth grounded using the correct clamp secured to the chassis. There are two possible configurations for grounding the inverters shown below.



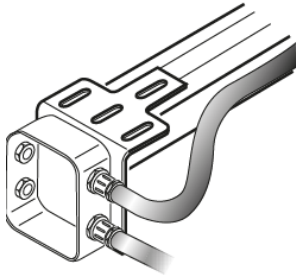
Equipment grounding conductor coupling all the MICRO inverters: The conductor must have a minimum cross section of 6 AWG (8AWG in conduits).

Equipment grounding through racking system: Conductor linking assembly to the grounding distribution structure must be at least 6AWG. The conductor bonding the MICRO to the structure must have a minimum



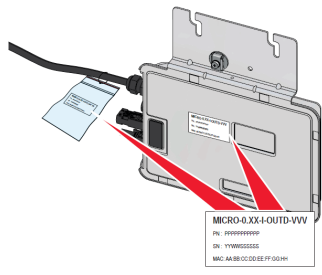
5

Connect the AC-TRUNK cable/s coming from the MICRO inverters to the junction box or to the AC distribution panel.



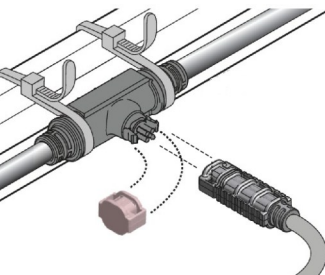
6

Use the labels affixed to each inverter to create the system map. Place the adhesive labels on the diagram found on Page 2 of this guide.

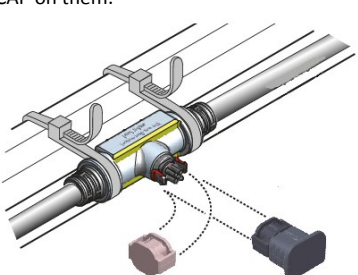


3

Fasten the AC-TRUNK cable to the frame using cable ties rated for use in the installation location. **Keep the connectors in a position accessible to the AC-TRUNK cable coming from the MICRO.**

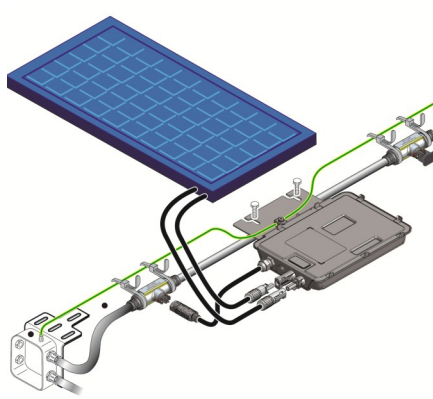
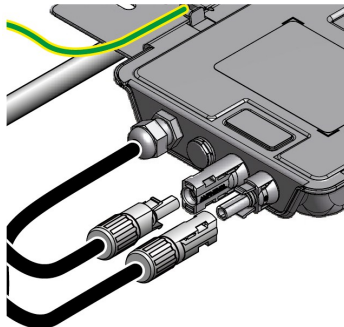


Remove temporary cap from AC-TRUNK cable connectors and connect MICRO inverters. The connectors are coupled correctly when two clicks are heard. Keep unused AC-TRUNK cable connectors watertight by fitting the AC-TRUNK PLUG CAP on them.



7

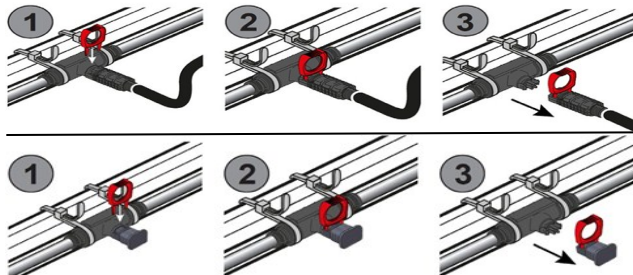
Plug the DC cables into the corresponding inputs on the MICRO inverters and install the photovoltaic modules.



!

Each module must be connected to the MICRO Inverter with a DC cable length of less than 3mm.

The AC-TRUNK UNLOCK TOOL is used for the disconnection of the AC connect or MICRO Inverter and for the removal of the AC-TRUNK PLUG CAP from the connectors on the AC- TRUNK cable.



IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS-KEEP IN SAFE PLACE!

This is a list of special safety symbols used in this guide that highlight potential safety risks and/or useful information. The symbol usage is described below:



WARNING: Indicates directions which must be understood and followed in entirety in order to avoid potential safety hazards, including equipment damage or personal injury.



CAUTION: The reader should stop, use caution and fully understand the operations explained before proceeding.



DANGEROUS VOLTAGE: The product works with high voltages. During inverter operation, parts will be energized at voltage levels. **HOT TEMPERATURE:** Some surfaces may become hot. Do not touch the product while it is in operation.



UL 1741 Standard for Safety for Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources. CSA-C22.2 No. 107.1-01 - General Use Power Supplies.

EQUIPMENT SAFETY WARNINGS:



System earth conductor (main grounding protective earth, PE)



AC Value



DC Value



Phase



Grounding (earth)

ELECTRICAL CONNECTION WARNINGS - This grid-tied inverter system operates only when properly connected to the AC distribution network. Before connecting the AURORA MICRO to the power distribution grid, contact the local power company to get appropriate approvals.

It is the responsibility of the installer to follow NEC and ANSI/NFPA 70 methods and requirements and any other local regulations when installing the required external disconnects and overcurrent protection devices, making electrical connections (conductor terminations, fuse, ground connections), and when installing the system grounding.

Connect only to a circuit with maximum branch OC protection of 20 Amps. The AC output neutral is not bonded to ground. Note input and output circuits are isolated from the inverter enclosure. Voltage and Frequency Tolerances are as follows:

Condition	Utility Interconnection and Voltage and Frequency Trip Limits and Trip Times		
	Simulated Utility Source		Max.time (sec) at 60Hz before cessation of current to the simulated utility
	Voltage	Frequency	
A	V< 50% Vnor (Not Adjustable)	Rated	0.16 sec (Not Adjustable)
B	50%Vnor≤ V< 88% Vnor Adjustable Set Points 55% to 88%	Rated	2 sec (Default) (Adj. Set Points 0.16 to 5 sec)
C	110%Vnor≤ V< 120% Vnor Adjustable Set Points 110% to 118%	Rated	1 sec (Default) (Adj. Set Points 0.16 to 5 sec)
D	V≥120% Vnor (Not Adjustable)	Rated	0.16 sec (Not Adjustable)
E	Rated	f > 60.5(Not Adjustable)	0.16 sec (Not Adjustable)
F	Rated	f < 59.3 (Default)(Adj. Set Points 59.8 Hz to 57.2 Hz)	0.16 sec (Default)(Adj. Set Points 0.16 to 300 sec)
G	Rated	f < 57.0 (Not Adjustable)	0.16 sec (Not Adjustable)

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LOAD PROTECTION SWITCH (ACDISCONNECT SWITCH) - To protect AC connection lines of, it is required to install a device for protection against over current with the following characteristics:

Protection breaker rating		6A	10A	16A	20A
Max number of Inverters @240VAC	MICRO-0.25	4	7	12	15
	MICRO-0.3	3	6	9	12
Max number of inverters @208VAC	MICRO-0.25	4	6	10	13
	MICRO-0.3	3	5	8	11

Dimensions of the thermal-magnetic circuit breaker is determined by the number of MICRO inverters connected to a single AC line. A 20A thermal-magnetic circuit breaker represents the maximum value permitted for installation in a single AC line, based on the AC cable cross section (10 AWG).





It is the installer's responsibility to adequately size the overcurrent protection, based on the number and types of MICRO inverters in the system. The inverter shall be connected only to a dedicated branch circuit.

INTERFACE PROTECTION SYSTEM AND DEVICE DOWNSTREAM OF THE INVERTER - The inverter does not include any electromechanical devices (relays, contactors, etc.) for automatic disconnection from the power grid. The system must be provided with external protection for the physical disconnection of the MICRO inverters from the grid, typically composed of an interface protection system that analyzes and controls the grid parameters and sends commands to the interface device in charge of physically disconnecting the PV installation MICRO inverters line.

To reduce the risk of fire, connect only to a circuit provided with 20A maximum branch circuit overcurrent protection in accordance with the National Electric Code (ANSI/NFPA 70).

The Power-One AC cables coming from MICRO inverters must be joined inside a junction box. A single line cable must form the connection to the distribution grid. The AC cable used is quadrupole and grounding is obligatory. Line cable (not supplied from Power-One) runs between the junction box and the load distribution panel. Power-One AC cables from the MICRO inverters have four conductors shown below. Close the junction box after the wiring is complete. Ensure that the seal is tight.

To prevent electrical hazards, all the connection operations must be carried out with the disconnect switch downstream of the inverter (grid side) open and locked.

	Item code	Description
	L1 red	AC-TRUNK SPOOL-41inches-50plugs  AC cable (4 conductors): 10 AWG; wheelbase 41" 50 connectors
	L2 black	AC-TRUNK SPOOL-67inches-32plugs  AC cable (4 conductors): 10 AWG; wheelbase 67" 32 connectors
	Neutral white	AC-TRUNK SPOOL-81inches-27plugs  AC cable (4 conductors): 10 AWG; wheelbase 81" 27 connectors
Ground green		

The installation technician is responsible for selecting a junction box with the appropriate dimensions and insulation. Do not to reverse the phase with the neutral!

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MAINTENANCE AND SERVICE - The MICRO inverter has no user-serviceable parts. Maintenance and service procedures must comply with the manufacturer's documentation. For more detailed information, see Maintenance, Part 6 in the Technical Manual found online at the **Power-One** website www.Power-One.com.

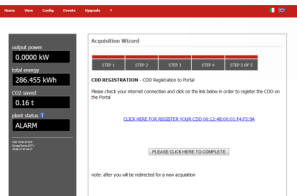
SAVE THESE INSTRUCTIONS - This Quick Start Guide contains important instruction for models as indicated below that shall be followed during installation and maintenance of the inverter.

TECHNICAL DATA	VALUES	MICRO-0.25-I-OUTD-US-208/240		MICRO-0.3-I-OUTD-US-208/240	
Nominal Output Power	W	250		300 ¹	
Rated Grid AC Voltage	V	208	240	208	240
Maximum Output Power	W	250		300	
Input Side (DC)					
Maximum Usable DC Input Power	Wp	265 ²		320 ²	
Absolute Maximum Voltage (Vmax)	V	65		65	
Start-Up Voltage (Vstart)	V	25		25	
Full Power MPPT Voltage Range	V	25-60		30-60	
Operating Voltage Range	V	12-60 ³		12-60 ³	
Maximum Usable Current (Idcmax)	A	10.5		10.5	
Maximum Short Circuit Current Limit	A			12.5 ³	
DC Connection Type		Amphenol H4 (MC4 compatible) PV connector			
Output Side (AC)					
Grid Connection Type		1Ø/2W	Split-Ø/3W	1Ø/2W	Split-Ø/3W
Adjustable Voltage Range (Vmin-Vmax)	V	183-228	211-264	183-228	211-264
Grid Frequency	Hz	60		60	
Adjustable Grid Frequency Range	Hz	57-60.5		57-60.5	
Maximum Output Current	A	1.20	1.04	1.44	1.25
Power Factor		> 0.95		> 0.95	
Maximum Number of Inverters per String		13	15	11	12
Grid Wiring Termination Type		12AWG Drop Cable from Inverter to 10AWG AC Trunk Cable			
Protection Devices					
Input					
Reverse Polarity Protection		Yes			
Output		Polarized PV Connectors (Amphenol H4)			
Anti-Islanding Protection		Meets UL 1741/IEEE1547 requirements		Meets UL 1741/IEEE1547 requirements	
Over-Voltage Protection Type		Varistor		Varistor	
Maximum AC OCPD Rating	A	20		20	
Efficiency					
Maximum Efficiency	%	96.5		96.5	
CEC Efficiency	%	96		96	
Operating Performance					
Stand-by Consumption	mW	< 50		< 50	
Communication					
Monitoring System		Wireless and Web-Based Monitoring through AURORA CDD			
Environmental					
Ambient Air Operating Temperature Range	°F (°C)	-40 to 167 (-40 to 75) with derating above 149 (65)		-40 to 167 (-40 to 75) with derating above 149 (65)	
Ambient Air Storage Temperature Range	°F (°C)	-40 to 167 (-40 to +75)		-40 to 167 (-40 to +75)	
Relative Humidity	% RH	0-100 condensing		0-100 condensing	
Acoustic Noise Emission Level	db (A) @1m	< 30		< 30	
Maximum Operating Altitude without Derating	ft(m)	6560 (2000)		6560 (2000)	
Mechanical Specifications					
Enclosure rating		NEMA 4X		NEMA 4X	
Cooling		Natural Convection		Natural Convection	
Dimensions (H x W x D)	in (mm)	10.5 x 9.7 x 1.37 (266 x 246 x 35)			
Weight	lb/(kg)	< 3.5 (1.65)		< 3.5 (1.65)	
Mounting System					
Safety		Rack mounting with 5/16" bolt			
Isolation Level		HF Transformer		HF Transformer	
Safety and EMC Standard		UL1741, EN61000-6-2, EN61000-6-3, FCC		UL1741, EN61000-6-2, EN61000-6-3, FCC	
Safety Approval		Part 15 CSA _{us}		Part 15 CSA _{us}	
Warranty					
Standard Warranty	years	10		10	
Available Models					
Standard		MICRO-0.25-I-OUTD-US-208/240		MICRO-0.3-I-OUTD-US-208/240	

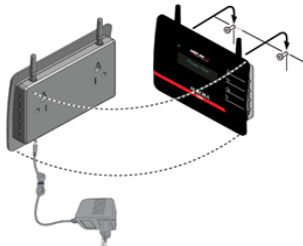
¹ With derating below 200V for 208VAC operation
² This is the maximum power that the inverter will utilize. It does not define the maximum power rating for the PV module.
³ Only use PV modules that satisfy these parameters under all operating conditions.

Associate the installed Micro Inverters on the CDD and select home networks for installation via wizard on the web server .

Register at the Power-One AURORA Easy View web portal.



Permanently mount the CDD to the wall. Consult the Instruction Manual for Aurora CDD operations and commissioning (found on the Power-One web page).

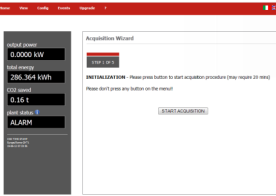


The inverter will not begin to feed energy into the distribution grid until the association procedure of the CDD (Concentrator Data Device) has been completed.



Choose the installation location of the CDD to configure the WiFi network and acquire the Micro Inverter. It is advisable NOT to fix the CDD to the wall in order to evaluate the placement based on the signal range.

Configure the Wi-Fi device (via display on CDD), or connect the CDD to a computer using the Ethernet port.



The purpose of the system map is to identify the inverter relative to its placement below the PV panel. The label affixed to the system map includes the identifying Serial Number. The CDD will display the production and other information based on the Serial Number.

	1	2	3	4	5
A					
B					
C					
D					
E					
F					

Orientation:



Affix the detachable label to each field on the map (located on the rear side of the inverter) bearing the serial number of the PVI-MICRO.



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Via S. Giorgio, 642
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+39 055 9195 1

Camarillo Facility
740 Calle Plano
Camarillo, California, 93012
United States
805-987-8741

Phoenix Facility
3201 East Harbour Drive
Phoenix, Arizona, 85034
United States
480-643-1700

Hong Kong Facility
Unit 1907-9, Tower 1,
The Gateway
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