

Voltage Drop Considerations, D380 TwinPack

240 Vac Single Phase

The table below provides recommendations for wire size from the junction box at the beginning of the Micro-inverter branch to the main load center based on distance.

External Branch (Home Run) Wiring Maximum Distance in Feet									
Wire	Micro-Inverters per Branch								
	2	3	4	5	6	7	8	9	10
12 AWG	419	274	199	153	121	97	79	63	50
10 AWG	669	437	318	244	193	155	126	101	80
8 AWG	1067	696	507	389	308	248	200	161	128
6 AWG	1690	1103	803	617	488	393	317	255	203
4 AWG	2695	1759	1280	984	779	626	506	407	324

Circuit Current Calculation

- Maximum Output Power = 380 Watts AC
- $380 \text{ W} \div 240 \text{ V} = 1.6 \text{ Amps}$
- $1.6 \times 10 \text{ inverters} = 16.0 \text{ amps / branch}$

Overcurrent Protection Calculation

- $16.0 \times 1.25 = 20.0 \text{ Amps}$

Conclusions

- Install 1 to 10 D380 TwinPack microinverters per branch circuit, up to 3800 Watts AC
- Maximum 2 Pole 20 Amp circuit breaker
- Minimum 12 AWG wire size
- ET3R-G2-06 Trunk Cable Required

Voltage Drop Considerations, D380 TwinPack

208 Vac Single Phase

The table below provides recommendations for wire size from the junction box at the beginning of the Micro-inverter branch to the main load center based on distance.

External Branch (Home Run) Wiring Maximum Distance in Feet										
Wire	Micro-Inverters per Branch									
	2	3	4	5	6	7	8			
12 AWG	329	214	154	117	91	72	56			
10 AWG	526	341	246	187	146	115	90			
8 AWG	838	544	393	298	232	182	143			
6 AWG	1328	862	622	472	368	289	227			
4 AWG	2117	1374	992	753	586	461	361			

Circuit Current Calculation

- Maximum Output Power = 380 Watts AC
- $380 \text{ W} \div 208 \text{ V} = 1.83 \text{ Amps}$
- $1.83 \times 8 \text{ inverters} = 14.64 \text{ amps / branch}$

Overcurrent Protection Calculation

- $14.64 \times 1.25 = 18.3 \text{ Amps}$

Conclusions

- Install 1 to 8 D380 TwinPack microinverters per branch circuit, up to 3040 Watts AC
- Maximum 2 Pole 20 Amp circuit breaker
- Minimum 12 AWG wire size
- ET3R-G2-06 Trunk Cable Required

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208 Vac Three Phase

The table below provides recommendations for wire size from the junction box at the beginning of the Micro-inverter branch to the main load center based on distance. The table is in increments of 3 inverters, always round up to the next increment.

External Branch (Home Run) Wiring Maximum Distance in Feet						
Wire	Micro-Inverters per Branch					
	3	6	9	12	15	
12 AWG	790	366	206	111	43	
10 AWG	1261	585	328	177	68	
8 AWG	2010	932	523	283	109	
6 AWG	3185	1476	829	448	173	
4 AWG	5077	2353	1322	714	275	

Circuit Current Calculation

- Maximum Output Power = 380 Watts AC
- $380 \text{ W} \div 208 \text{ V} = 1.8 \text{ Amps}$
- $1.8 \times 5 \text{ inverters per phase} = 9.00 \text{ amps per phase}$
- $9.00 \times 1.73 = 15.6 \text{ amps per leg}$

Overcurrent Protection Calculation

- $15.6 \times 1.25 = 19.5 \text{ Amps}$

Conclusions

- Install 1 to 15 D380 TwinPack microinverters per branch, up to 5700 Watts
- Maximum 3 Pole 20 Amp circuit breaker
- Minimum 20 AWG wire size
- ET3C-G2-06 Trunk Cable Required