

TECHNICAL BULLETIN

Branch Circuit Sizing

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Be advised that the Chilicon Power TC-ER trunk cable is manufactured using #10 AWG stranded copper wire. NEC code specifies that the maximum allowable breaker size allowable on this type of wire is 30A. Scaling this by the 80% required safety factor results in a maximum allowable current of 24A per branch circuit.

This wire itself has a maximum current carrying capacity of 40A at 30°C. Depending on the conditions, we recommend a derate factor of either .65 or .6 for roof top deployment. This will yield an operational current of at least 24A through our trunk cable.

When calculating the maximum number of permissible microinverters on a branch circuit, NEC code section 690.8A(3) applies:

Inverter Output Circuit Current - the maximum current shall be the inverter continuous output current rating.

Therefore, the maximum number of inverters per branch circuit is $24A \div$ maximum inverter output current. For the CP-720, this value is either 3A at full power or 2.4A for the power limited version. This results in permissible branch sizes of either 8 or 10 microinverters (if power limited) for a 240V system and 7 or 9 microinverters (if power limited) for a 208V system.

Chilicon Power has tested our trunk cable and approves its use per these guidelines in worst case environments.

For details on the power limiting procedure using the Chilicon Power C-100 Gateway, please consult Technical Bulletin TBT4: Power Limiting of Microinverters.