



**SolarTech Power Solutions**

# **Communication module obtains base station time**



## Overview

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Why is timing synchronization important in radio access networks?

After cell location and connectivity, delivery of precise timing is the most important element in radio access networks, as timing synchronization directly affects radio spectral efficiency and in turn throughput.

Should macro base stations be decommissioned?

While macro base stations previously could receive accurate frequency synchronization from legacy E1/T1 TDM connections and Time of Day (ToD) through GPS/GNSS satellite receivers, E1/T1 connections are decommissioned everywhere to reduce recurring access operating costs.

Which network elements can support both BC and TC?

The optimal solution may be a combination of BCs located at network interconnection points and TCs in the subsequent tributaries and rings. Generally, most network elements will be able to support both BC and TC, in particular if they could also serve as a time slave.

How many time errors can a base station / EnodeB have?

Base stations /eNodeBs themselves also could have time errors as little as 20 ns-30 ns when using high-precision timestamping PHYs. The maximum time error of the entire backhaul network simply becomes the sum of all time errors allocated to each network element or hop.

Why do mobile base stations use GNSS/GPS?

Many of the current mobile base stations use GNSS/GPS as the source for the all-important signal known as 1 pps. This signal is used to manage the ToD calculation for next second rollover as well as to synthesize the fundamental source radio frequencies.

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