

PROTELEVISION OSCILLATORS SPECIFICATION

Reference system accuracy & stability

All signal processing inclusive RX/TX frequency synthesis is based on a single reference frequency. Meanwhile other modulation solutions offer only a level of internal reference, ProTelevision allow the customer to decide among 3 different levels of internal precision. This allow the customer to be more cost efficient and at the same time decide the best solution for their needs: 1 to 3, 3 being the highest specified

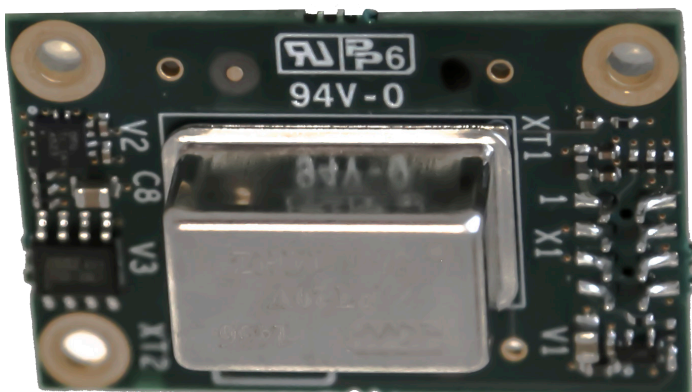
Type numbers of the three oscillator grades referenced in the following are:

- 1 Default oscillator
- 2 PT3710-10
- 3 PT3710-20

The internal reference system has the following operating modes and related specs:

<p>“Internal reference selected”: Free running at preset frequency:</p>	<p>After power-up and warm-up</p>
	<p>Retrace accuracy: 1 Better than $\pm 0,1\text{ppm}$ 2 Better than $\pm 0,05\text{ppm}$ 3 Better than $\pm 0,01\text{ppm}$</p>
	<p>Stability over operating temperature range, referenced to 25°C: 1 $\pm 2\text{ppm}$ 2 $\pm 0,25\text{ppm}$ 3 $0,01\text{ppm}$</p>
	<p>Ageing: 1 $\pm 5\text{ ppm}$, over 10 years 2 $\pm 3,6\text{ ppm}$, over 10 years 3 $0,02\text{ppm}$ per year</p>
	<p>Warm-up time within $\pm 0.1\text{ppm}$ of steady state frequency: 1 TCXO 2 1 minutes, 3 1 minutes,</p>
<p>Auto-switching to hold-over mode: Free running at ‘learnt’ frequency and time, after external ref. has been present for a while, but has disappeared</p>	<p>After power-up and warm-up and after stable external reference has been applied for a while, the hold-over stability over 1 day at fixed ambient temperature</p>

<p>"Internal reference selected": Free running at preset frequency:</p>	<p>is:</p> <p>1 0,1ppm (150µs/3h) 2 0,01ppm (150µs/12h) 3 5ppb (220µs/24h)</p>
	<p>Frequency matches external reference within tracking range:</p> <p>1 ± 7 ppm 2 ± 4 ppm 3 $\pm 0,6$ ppm</p>
	<p>Locking time after connection of external reference:</p> <p>1 <1s 2 <1s 3 <5s</p>
<p>Locked to internal GPS/ Glonass reference:</p>	<p>Stability, short term:</p> <p>1 TBD 2 0,005 ppm 3 0,001 ppm</p>
	<p>1pps time accuracy, short term:</p> <p>1 TBD 2 100ns rms 3 50ns rms</p>



PHASE NOISE IN CHANNEL 69 FOR THE THREE DIFFERENT OSCILLATORS:

