



Timer/Counter/Analyzer with 2.8 nanosecond resolution

- Digitizes Time Intervals
- USB controlled instrument
- TTL/CMOS logic inputs/outputs
- Flexible Arming/Triggering
- Linux 32/64-bit

Features

- 2.8 ns resolution, 6 ns minimum Pulse Width, 100 MHz fMax
- Two independent input channels
- External reference and trigger channels
- Jitter, Frequency, Time Interval, Pulswidth Measurements
- Two channel start/stop measurements
- Repetitive measurements: Single-Stop Histogram, Multi-Stop Histogram

Applications

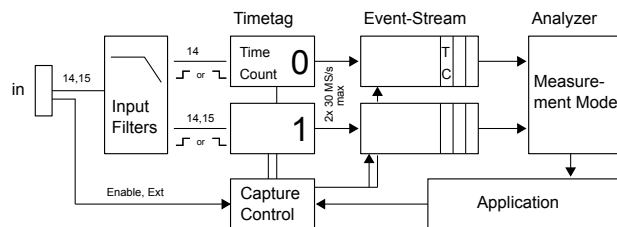
- Edge Counter, Time Stamping
- Pulse-Width, Pulse, Semi-Period, Frequency, Period, Position Measurement
- Simple Pulse, Pulse Train, Frequency Generation
- Time-to-digital conversion (TDC)
- Time-of-flight (TOF) measurements



Overview

The TIC-8420 is a novel Timer/Counter/Analyzer based on digitization of time intervals in pulse trains with 2.8 ns resolution.

TIC Architecture

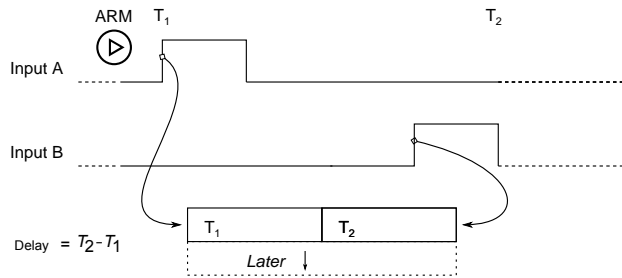


An IMPORTANT NOTICE at the end of this document addresses availability, warranty, changes, use in safety-critical applications, intellectual property matters and other important disclaimers.

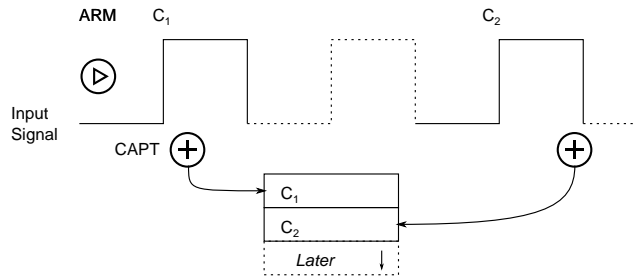


Measurement Modes

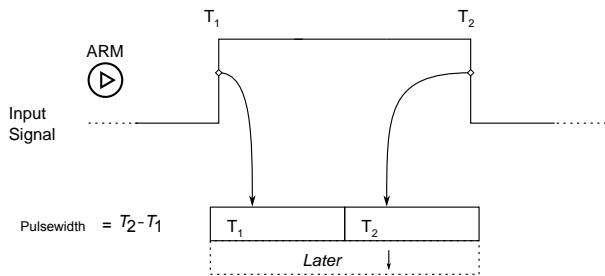
MDEL Measurement Mode



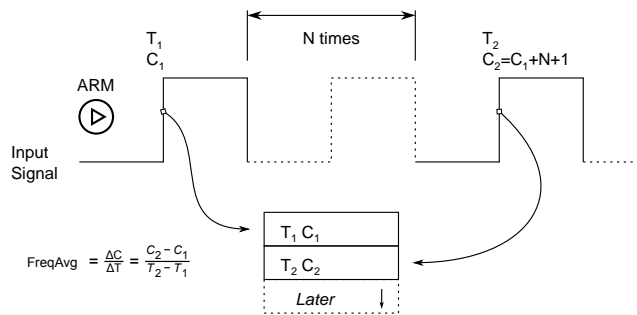
MTOC Measurement Mode



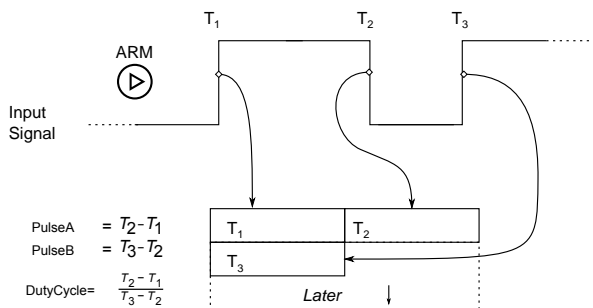
MPWI Measurement Mode



MFAV Measurement Mode



MPUL Measurement Mode



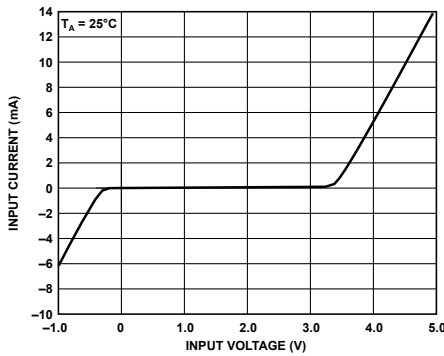
Specifications

Timebase

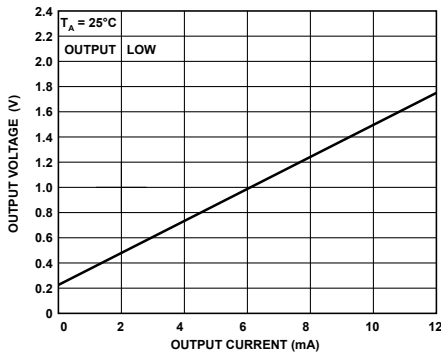
Stability (vs. ambient temperature): ± 3.0 ppm
Aging (first year): ± 2.0 ppm

Electrical Data

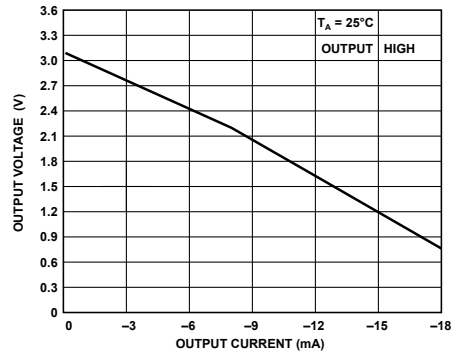
Overvoltage Protection (permanent, all inputs): $-5.0V \dots +8.7V$
Overvoltage Protection (peak, max. 10 ms, 2% duty cycle): $\pm 20V$
Input Characteristics (Pull-down $33k\Omega$ at each input):
 Logic L $\leq 0.8V$, Logic H $\geq 2.0V$



Output Characteristics (low):



Output Characteristics (high):



Supply Voltage (USB): $5V \pm 5\%$

Supply Current (USB): 150 mA max.

Environmental and Physical

Size (excluding connectors): 111 mm L x 76 mm W x 29 mm H

Weight: 160 g

Operating ambient temperature: $0 \dots 50^\circ C$

Storage temperature: $-20 \dots 80^\circ C$

Relative humidity: 5 ... 95%, noncondensing

USB connector: Extraction force $\geq 15N$, Mating force $\leq 35N$

Ordering Information

TIC-8420 - Instrument, USB cable (1m), Software Download Card

Important Notice

Trademarks — Product, service, or company names used in this document are for identification purposes only and may be either trademarks or registered trademarks of the relevant trademark owners. LabView, NI-488.2, LabWindows, PXI, DASyLab, DIAdem are trademarks or registered trademarks of National Instruments Corp., USA, in the United States and/or other countries. Microsoft, Windows, Windows NT, Windows CE, Windows 2000, Windows ME, Windows XP, Windows Vista, Visual Basic, Visual-C++ are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Specifications — All specifications are subject to change without prior notice.

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, Ines does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. Ines takes no responsibility for the content in this document if provided by an information source outside of Ines. In no event shall Ines be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory. Notwithstanding any damages that customer might incur for any reason whatsoever, Ines' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms and conditions of commercial sale of Ines.

Software — ALL SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.