

CT412

UNIVERSAL FOUR CHANNEL COUNTER AND TIMER WITH
 NAMUR SENSOR- / MECHANICAL CONTACT- / TTL-INPUTS

Document Revision 070628 – 28 June 2007



The CT412 is a four channel counter with NAMUR sensor- / mechanical contact- / TTL-signal inputs and a timer to capture the measurement period.

Each of the four input channels is capable to count the pulses on the respective input signal (rising edge triggered) and to capture the input signal frequency.

Each channel comes with a bypassable digital lowpass filter. The cut-off frequency of the respective filter is adjustable in the range from 2 Hz to 7.5 kHz, which allows the selective limitation of the input signal bandwidth.

An external input signal may be used to gate the counters as well as the timer. A remote control with two push-buttons may be connected to start and stop a measurement.

Output signals are provided to monitor the lowpass-filtered input signals and the system status as well as the internal operation timing.

The graphical display with a touch screen indicates the measuring data and may be used to control the system. A computer may be connected over the RS-232 interface to control the system and to monitor the measuring data (Windows application software included).

The CT412 has three operating modes which determine the termination of a measurement period. A measurement may be terminated either manually or once the timer has reached a predetermined period of time or once the counter of channel 1 has reached a predetermined number of pulses.

Main Features

- Easy to use, graphical LCD with touch screen
- Three operating modes (manual, preset timer, preset counter)
- Four input channels with rising edge triggered pulse counters (6 digits)
- Transformer isolated switch amplifier according to EN 60947-5-6 (NAMUR) per input channel
- TTL-signal input with Schmitt-Trigger input buffer per input channel
- Bypassable digital lowpass filter (2 Hz ... 7.5 kHz) per input channel
- Input signal frequency capturing (4 digits) per input channel
- Timer to capture the measurement period (up to 9999.99 s)
- System status, sync and lowpass filtered signals outputs (TTL-signals)
- External input to gate the counters and the timer (TTL-signal)
- Remote control inputs to start and stop a measurement
- Serial interface RS-232 (application software for Windows 2000 / XP / Vista included)
- Power-down memory (20 years of data retention)

Specifications

In General	
Mains Input	90 VAC to 250 VAC, 47 to 63 Hz, 50 W max.
Outline Dimension	484 x 140 x 310 mm (w x h x d)
Weight	4.5 kg
Operating Temperature	10° C to 40° C
Signal Processing	
Operating Frequency Stability	±1 ppm typ., ±4 ppm max. over operating temperature range
Frequency Capturing Gate Time	1 s typ.
Lowpass Filter Settings	Min ... 5 %: Lowpass filter bypassed 5 % ... Max: Lowpass filter enabled, cut-off frequency from 7.5 kHz down to 2 Hz (optional 5 Hz, 15 Hz or 50 Hz)
Signal Inputs	
Isolated Switch Amplifier Inputs	Rated Values: According to EN 60947-5-6 (NAMUR) Input Frequency: 5 kHz max.
TTL-Signal Inputs	Input Impedance: 5 kOhm typ. Negative Threshold: 0.8 V max. Positive Threshold: 3.5 V min. Input Frequency: 10 kHz max.
Signal Outputs	
Output Voltage Low / High	0.5 V max. / 4.2 V min.
Output Impedance	50 Ohm typ.
Status Output, Sync Output	
Output Voltage Low / High	0.7 V max. / 3.8 V min.
Output Impedance	300 Ohm typ.
External Input	
Input Voltage Low / High	0.8 V max. / 2.0 V min.
Input Impedance	5 kOhm typ.
Input Frequency	10 kHz max.
Remote Control Inputs	
Open Loop Voltage	5 V typ.
Active / Inactive Threshold	1 kOhm max. / 500 kOhm min.
Serial Interface RS-232	
Settings	38400 bps (optional 115200 bps) 1 Startbit, 8 Databits, 1 Stopbit, no parity No handshake (optional hardware RTS-CTS)