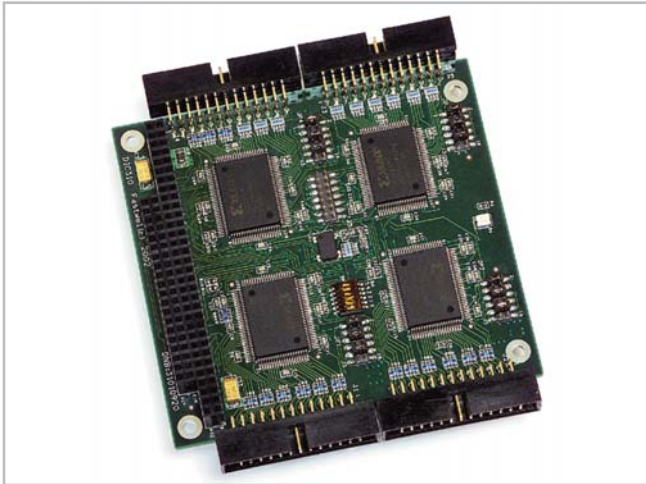


UNI096-5, UNI048-5

Programmable PC/104 I/O Card



Features

- 96/48 digital/frequency I/O channels programmable in any combination
- Compatibility with digital/analog opto-isolated modules Opto-22, Grayhill (including 73G, 73L)
- Frequency, phase measurement at any channel
- Timers/counters
- Frequency generation and pulse width modulation (PWM) at any channel
- Code conversion at any channel
- Timing diagrams generation
- Input event interrupts generation
- Programmable debounce logic
- In-System Programming
- Extended operating temperature range from -40°C to $+85^{\circ}\text{C}$

Description

The UNI096/48-5 are 96/48-channel digital I/O PC/104 add-on cards. The cards deal with the TTL-level signals and can be used to interface with opto-isolated modules racks, displays, LED-devices. The card provides a wide range of functions – counting, sequencing, timing diagrams generation, pulse width modulation, code conversion etc.

The module uses FPGA chips for signal processing. It supports in-system programming which allows to change the control logic algorithm without turning power off. Software examples are available in C, description files of basic and custom circuit programming variants are available on the CD supplied with the card or can be downloaded via Internet from the Fastwel web-site: <http://www.fastwel.com>.

Interface with Grayhill opto-isolated modules (circuit versions “g00”, “g01”)

One of the main applications of the UNI096/48 is an interface with opto-isolated Opto-22 and Grayhill modules and with isolated digital I/O cards (TBI-

24/0, TBI-0/24). These versions of the circuit allow to operate with opto-isolation modules of any type (analog, digital, input, output) through any of 96/48 channels. When operating with Gray-hill analog opto-isolated modules the UNI096-5 accepts four input/output lines of series 73G or eight in-put/output lines of series 73L simultaneously without using the processor.

The interrupts generation is available while operating with the analog opto-isolated modules.

Displays control

The UNI096/48-5 can be used to interface with LCD, vacuum fluorescent displays or LED indicators with parallel and serial interfaces.

Counters/timers

The UNI096/48-5 can be used as timers or pulse counters. Circuit version “t00” provides 16/8 16-bit timers based on external or internal frequency

source. Circuit version “c00” provides 96/48 16-bit counters.

Frequency measurement

Frequency measurement is one of popular applications of UNI096/48-5 card. There are different types of frequency measurement circuits in the basic circuitry set. They differ by: measurement methods (averaging for time period, filling by the sample frequency); measurement ranges (from 0.001 Hz to 50 MHz); accuracy (up to 0.0001%), and the number of measuring devices (for UNI096-5 – from 4 to 32 devices). Frequency measurement can be performed at any channel of the card. The frequency gauges can generate interrupts (AND/OR) both within card and from several cards.

Pulse width modulation and frequency generation

The UNI096/48-5 can be used for frequency generation and PWM in frequency range up to 25 MHz.

Corporate Offices

FASTWEL GROUP Co. Ltd

108 Profsoyuznaya str.
Moscow, Russia 117437
Tel: +7 (495) 232-1681
Fax: +7 (495) 232-1654
E-mail: info@fastwel.com
Web: www.fastwel.com

FASTWEL Corporation US

55 Washington street, Suite 310
Brooklyn, NY 11201
Tel: 1.718.554.3686
Fax: 1.718.797.0600
Toll free: 1.877.787.8443
(1.877.RURUGGED)
E-mail: info@fastwel.com

FASTWEL Asia

6F., No. 118, Ln.235, Baoqiao
Rd., Xindian Dist,
New Taipei City, Taiwan, R.O.C.
Tel: +886-2-8912 1938
Fax: +886-2-8912 1939
E-mail: asia@fastwel.com



Interrupts generation on input events

The UNIO96/48-5 provides interrupts generation on input events (switching 1→0; 0→1; 1→0+0→1) at any of 96/48 lines with programmable debounce time.

In-System Programming

Thanks to the ISP technology the UNIO96/48 configuration may be quickly changed (in 10...60 sec) without turning off the power. The program isp.exe is used for reprogramming of the module. The program uses as parameters the base address for the UNIO96/48-5 and circuitry binary resource files (*.bit). This technology considerably reduces the implementation time of custom and non-standard configurations of the module and reduces costs.

Connections

The 96/48 I/O lines on the UNIO96/48-5 are organized into 4/2 26-pin IDC-26 connectors. The TB-26 series terminal boards, MPB-xx series opto racks and TBI-xx/xx series interface opto-isolated boards can be used to connect signals to the UNIO96/48-5 card. The I/O lines can be pulled to +5 V or GND through 10 kΩ pull-up/pull-down resistors by the groups of 8.

Software library

A utility disk supplied with the UNIO96/48-5 package contains:

- Software for in-system programming
- Binary resource files of circuit configurations
- Configurations descriptions
- Configuration programming examples in C

Technical Specifications

Input voltage:

CMOS and TTL levels compatible

Output voltage:

CMOS level compatible

Output current:

0–8 mA logic interface (CMOS level), 0–30 mA for opto module racks

Frequency measurement range:

Up to 50 MHz

Frequency measurement accuracy:

Up to 0.0001%

Frequencies generation range:

Up to 25 MHz

Measurement time

of analog inputs of the Grayhill 73G/73L opto-isolated modules: 750/250 μs

Settling time

of analog outputs of the Grayhill 73G/73L opto-isolated modules: 800/250 μs

Power requirements:

+5 V ±5%

Current consumption:

UNIO48-5: 180 mA, UNIO96-5: 340 mA

Operating temperature range:

from –40°C to +85°C

RH:

up to 95%, non-condensing

Size:

124.46×114.30 mm (4.5"×4.9")

Ordering information

DIC11101 Configuration

Device Type

DIC31001	UNIO96-5, PC/104 universal digital I/O card, 96 lines
DIC31002	UNIO48-5, PC/104 universal digital I/O card, 48 lines

Accessories

ACS00002	FC26-60, ribbon cable, 26 threads, IDC connectors, 0.6 m (2 ft)
DIB9120x	TBI-24/0C -x, digital input terminal cards, 24 channels
DIB91301	TBI-0/24C, isolated digital output terminal card, 24 channels
DIB91101	TBR8, relay output terminal board, 8 channels
TIB96101	TBI-24LC, terminal board for Grayhill 70L&73L, 24 contacts
TIB96201	TBI-16L, terminal board for Grayhill 70L&73L, 16 contacts
TIB96501	TB-26, terminal board, 26 contacts

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108 Profsoyuznaya str.
Moscow, Russia 117437
Tel: +7 (495) 232-1681
Fax: +7 (495) 232-1654
E-mail: info@fastwel.com
Web: www.fastwel.com

FASTWEL Corporation US

55 Washington street, Suite 310
Brooklyn, NY 11201
Tel: 1.718.554.3686
Tel: 1.718.797.0600
Toll free: 1.877.787.8443
(1.877.RURUGGED)
E-mail: info@fastwel.com

FASTWEL Asia

6F., No. 118, Ln.235, Baoqiao
Rd., Xindian Dist,
New Taipei City, Taiwan, R.O.C.
Tel: +886-2-8912 1938
Fax: +886-2-8912 1939
E-mail: asia@fastwel.com



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