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SBS Technologies, Inc.

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# IP-Unidig-T

## IndustryPack Module With Four 16-bit Timers with Buffered TTL-Level I/O Lines

### Application Information

The IP-Unidig-T, a timer IndustryPack, provides four general purpose 16-bit count-down timers with high current ouptput drivers and wide voltage range inputs. Outputs will sink up to 64 mA of continuous load current. Inputs will handle up to +15/–5 V with a 1.25 V logic threshold for direct CMOS/TTL compatibility. Two sets of timers may be cascaded to provide two 32-bit timers. The timers have two modes of operation, one-time (count down and stop) and continuous (reload on zero and continue counting). A programmable interrupt may be generated upon reaching zero in either mode.

Each timer's clock source is either a 1 MHz internal clock or up to a 10 MHz external clock (5 MHz in 32-bit mode). The internal clock provides one microsecond resolution while the external clock provides up to 100 nanosecond resolution.

Two signals control each timer's operation, providing simple yet versatile programming options. An enable bit in the control register enables and disables each timer's counting. Strobing a gate input starts the timers. The source for each timer's gate may be either internal or external. The external gate has programmable polarity for maximum flexibility. Each timer's count may be read reliably at any time without affecting the timer's operation by the use of a dedicated read register.

A divide-by-two option may be programmed to generate either a square wave if the timer is in continuous mode, or an alternating high and low if the timer is in one-time mode.

Reset stops and resets the timers and clears any interrupt for a consistent software interface.

A subroutine library and Windows NT drivers are available.

### Features

- Fout 16-bit timers with buffered TTL digital I/O on a single-wide IndustryPack
- 64 mA +15/-5 V operation
- Trigger, clock and output lines for each timer
- Timers cascadable in pairs for 32-bit operation
- Intenal or external clocks



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## Specifications

| | |
|---|---|
| Form Factor | Single-wide Type I IndustryPack |
| IndustryPack Interface | Complies with ANSI/VITA-4 |
| Interface Speed | 8 MHz |
| Wait States | None |
| Number of Timers | Four |
| Timer Resolution | 16 bits<br>May be cascaded in pairs for 32-bit operation |
| Timer Inputs | Clock and trigger |
| Timer Outputs | Zero count<br>May be used in fixed or divide by two modes |
| Clocking | Internal 1 MHz<br>Extenal up to 10 MHz (5 MHz if 32-bit countes used) |
| Input Drivers | +15/-5 V range<br>Logic threshold of 1.25 V with 50 mV hysteresis |
| Output Drivers | Open collector transistor with 1 kOhm pullup<br>64 mA $I_c$ for $V_{ol}$=0.80 V |
| ESD Protection | None |
| Interrupts | On counter = zero |
| Dimensions | 1.8 inches x 3.9 inches |
| Weight | 0.06 kg (0.1 lb) |
| Power Requirements (no load) | +5 VDC, 170 mA typ |
| Environmental | Operating temperature: -0 to +70°C<br>Extended temperature: -40 to +85°C<br>Humidity: 5 to 95% non-condensing<br>Storage: –40 to +85°C |

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## Ordering Information

| | |
|---|---|
| IP-UNIDIG-T | IndustryPack with four 16-bit timers |
| IP-UNIDIG-T-ET | IndustryPack with four 16-bit timers, extended temperature |
| EKIP50-UNIDIG09 | Engineering kit for IP-Unidig-T if mounted on a carrier with 50-pin ribbon cable header front panel I/O connectors. Contains:<br>Six foot 50 conductor ribbon cable (C-IP50F-IP50F-6)<br>Fifty screw terminal block with ribbon header (IP-TERM)<br>*(More items as below)* |
| EKHD50-UNIDIG09 | Engineering kit for IP-Unidig-T if mounted on a carrier with HD50 front panel I/O connectors. Contains:<br>Six foot cable HD50 male to HD50 male (C-HD50M-HD50M)<br>Fifty screw terminal block with HD50 female (IP-TERM-HD50)<br>*(More items as below)* |
| EKCM50-UNIDIG09 | Engineering kit for IP-Unidig-T if mounted on a carrier with Champ50 front panel I/O connectors. Contains:<br>Six foot Champ50 male to HD50 male cable (C-HD50M-CM50M)<br>Fifty screw terminal block with HD50 female (IP-TERM-HD50)<br>*(More items as below)* |
| All IP-UNIDIG-T engineering kits include: | Printed hardware user manual<br>Bill of materials<br>Board schematics<br>Assembly diagram<br>Motorola: MMPQ2369 data sheet<br>AMD: AM26LS33SC data sheet |
| QP-UNIDIG-TIM | QuickPack subroutine library for IP-Unidig-T. Contains:<br>Printed software user manual<br>Floppy Disk containing:<br>C source code<br>Release notes |
| ND-SDPACK | Windows NT 4.0 SDpacK IndustryPack driver CDROM |

## Associated Products

| | |
|---|---|
| IP-UNIDIG-T-D | IndustryPack with four 16-bit timers with differentail I/O |
| C-IP50M-IP50M-3 | Three foot 50 conductor ribbon cable |
| C-IP50M-IP50M-6 | Six foot 50 conductor ribbon cable |
| C-CM50M-IP50M | Three foot Champ50 male to ribbon cable |
| C-HD50M-HD50M | Six foot HD50 male to HD50 male cable |
| C-HD50M-CM50M | Six foot Champ50 male to HD50 male cable |
| IP-TERM | 50 screw terminal block with ribbon cable connector |
| IP-TERM-HD50 | 50 screw terminal block with HD50 female connector |



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