PCIe-WDG-CSMA
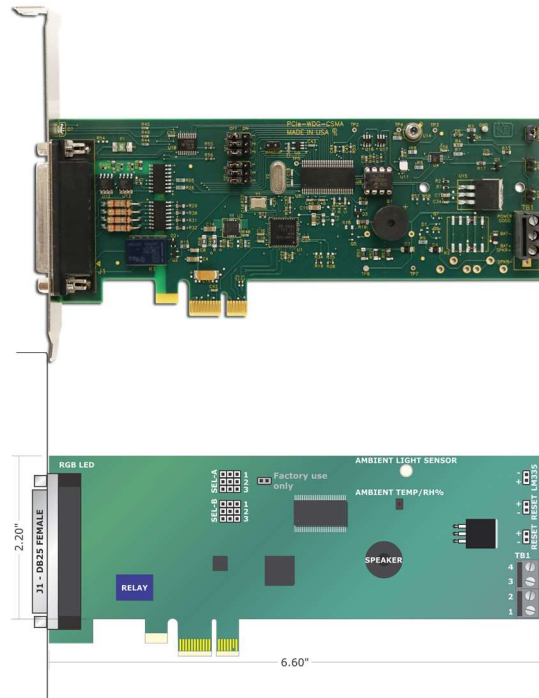## Watchdog Timer & I/O Card Datasheet

FEATURES
- MD2 Low Profile Watchdog Timer & Computer Status Monitor
- Open collector transistor output to ground power good line or reset switch via pass through upon timeout
- DPDT relay contacts notify external devices when reset signal occurs
- 2 Digital outputs & 2 LVTTL inputs (5V tolerant)
- DB25 female connector on mounting bracket
- RGB LED at mounting bracket provides at-a-glance status information
- Onboard speaker
- EEPROM for configuration and firmware

Advanced Model Features
- Analog to Digital Converter with integrated Temp & Humidity sensors and multiplexed inputs
- +12V & +3.3V PCIe Power Monitor
- Ambient light sensor
- External LM335 temperature sensor
- 4 Isolated digital inputs accept up to 31VDC
- 2 Isolated FETs switch from 5 to 34VDC

FACTORY OPTIONS
- Extended temperature operation (-35° to +70°C)
- RoHS Compliance
- Low Profile Mounting Bracket

FUNCTIONAL DESCRIPTION

This product is a Low Profile PCIe Watchdog Timer & Utility I/O card. The card is 6.6 inches long and 2.535 inches seated height. External I/O wiring connections are via a female DB25 connector on the card mounting bracket.

The PCIe-WDG-CSM card contains a watchdog timer and on-card RGB LED and speaker alarm to signal watchdog timeout. A DPDT relay, two LVTTL inputs and two digital outputs, and fused 3.3V general purpose outputs are accessed via the DB25 female I/O connector on the card mounting bracket.

An advanced model, the PCIe-WDG-CSMA, is also available which includes an A/D converter to monitor the computer power supply, and sensors to monitor the internal temperature and humidity, ambient light, and comes with a remote temperature sensor on an 18" cable. A pair of opto-isolated outputs and four opto-isolated inputs are available for general purpose use.

PCIe-WDG-CSMA: Advanced Feature Pack* Advanced software package multiplies the power of your Watchdog.

Create a customized configuration package and upgrade your PCIe-WDG-CSMA device to
1)	protect your computer from common problems that can occur during power-on self test (POST)
2)	control one or more outputs when input(s) toggle or other Events occur
3)	schedule output changes to occur periodically or at a specific time
4)	play WAV files when Events happen, including Growl, Bark, "LVTTL0 falling edge detected", etc.
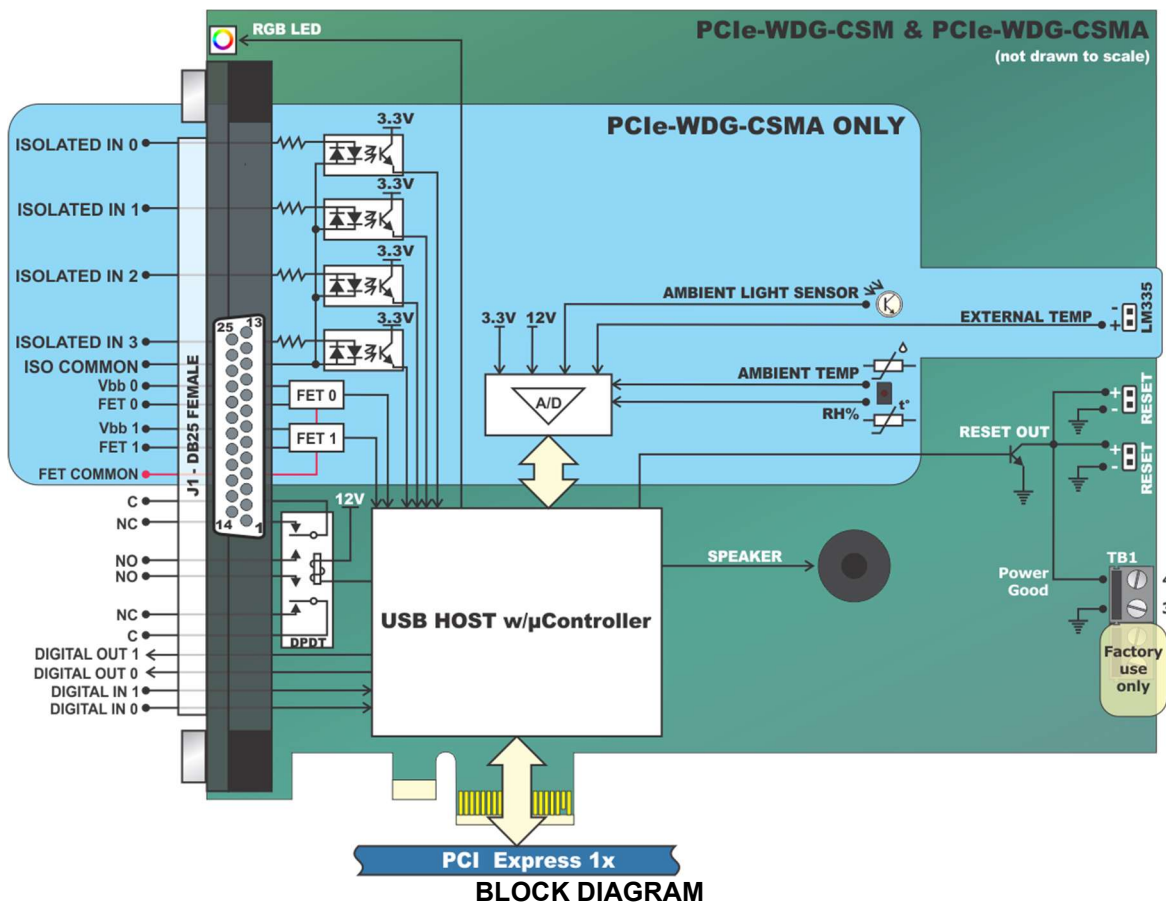
All features can be configured through either a Windows GUI-based settings program or our flexible AIOWDG.dll API, with settings stored in onboard non-volatile memory.

OPTIONAL ACCESSORIES

ADAP25M		Lowest cost approach, minimum labor (no soldering). Plugs directly on to I/O connector on card mounting bracket, at the back of the PC.
STB-25 & CAB25MF-x		Terminals at 45 degrees, mountable on DIN-Rail, can be located away from the back of the PC.

SOFTWARE

The card is supported for use in most operating systems and includes Linux and Windows compatible software packages. This package contains sample programs and source code in Delphi and Visual C++ for Windows. Linux support includes installation files and basic samples for programming from user level via an open source kernel driver. Third party support includes a Windows standard DLL interface usable from the most popular application programs. Embedded OS support includes Windows XPe.

BLOCK DIAGRAM

SPECIFICATIONS

Two Digital Inputs
Pull-up resistors   10k ohm

Two Digital Outputs

Logic Levels	3.3V	
Low Inputs	≤ 0.8V	≤ 1uA
High Inputs	≥ 2.0V	≤ 1uA
Low Outputs	≤ 0.6V	≤ 24mA
High Outputs	≥ 2.5V	≤ 24mA

Relay
Contacts   Dual Form C (DPDT)
Nominal Ratings   1A, 30VDC, 0.5A 125VAC (resistive)

Reset Output
Open Collector Transistor to ground

Isolated Digital Inputs
Quantity: 4, PC isolated, sharing a common return
Type: Opto-couplers
Voltage Range: 3 to 31 VDC
Isolation: 500V channel-to-ground
Input Resistance: 1.8K ohms in series with opto coupler

Isolated FET Outputs
Quantity: 2, PC isolated, sharing a common return
Output Type: High Side Power MOSFET Switch
Protected against short circuit, over-temp., ESD, can drive inductive loads.
Voltage Range: 5-34VDC (customer supplied)
Current Rating: 2A maximum
Minimum load: Required

Computer Status Monitor (I²C Interface)
Sensors (2)
Ambient Temperature   -40 to +125°C ±0.3 - 0.7% typical
Relative Humidity   0-100% RH, ±3% typical
Analog Inputs (4)
3.3V from PC Supply
12V from PC Supply
Ambient Light Sensor
LM335 Temp Sensor

Environmental
Operating Temperature   0° to 70°C, optional -35° to +70°C
Storage Temperature   -40° to +85°C
Humidity   5% to 95% RH, w/o condensation
Card Dimensions   6.6"Length; Height 2.535" seated
MD2 Low Profile Specification

ORDERING GUIDE
- PCIe-WDG-CSM   PCI Express Watchdog Timer
- PCIe-WDG-CSMA   Advanced Watchdog Timer Card

Factory Options
- Extended temperature operation (-35° to +70°C)
- RoHS Compliance
- Low Profile mounting bracket

DB25F Connector Pin Assignments

Pin	Signal	Pin	Signal
1	RELAY 1C	14	RELAY 2C
2	RELAY 1N0	15	RELAY 2NO
3	RELAY 1NC	16	RELAY 2NC
4	ISOL IN RETURN*	17	ISOL IN 4*
5	ISOL IN 3*	18	ISOL IN 2*
6	ISOL IN 1*	19	ISOL OUT 2 VBB*
7	ISOL OUT 1 VBB*	20	ISOL OUT 2 VOUT*
8	ISOL OUT 1 VOUT*	21	ISOL OUT RETURN*
9	LVTTL IN 2	22	GND
10	LVTTL IN 1	23	GND
11	LVTTL OUT 2	24	GND
12	LVTTL OUT 1	25	GND
13	3.3VDC via polyfuse		
*Indicates PCIe-WDG-CSMA version only			