

OVERVIEW

The Cescom Widget is a highly-configurable data communications and control device that through a combination of software and/or factory configuration can be used in a wide variety of tasks ranging from simple serial communications conversions to stand-alone control.

This is made possible due to the simple yet powerful central processor chip based on eight 32-bit processors integrated on a single chip. These processors implement virtual peripherals in real-time as well as processing the data. An example of this virtual peripheral reconfigurability is the RS232 port which with its input and output lines is totally under software control and can just as easily be configured as 5 independent serial inputs and 3 serial output channels rather than just a standard single channel with handshake lines.

Given the large number of external device ports and internal device options the Widget can be used for many tasks which require these types of interfaces. Free customized software and configurations can be requested even for very small runs making the Widget a device of choice for many new projects and upgrades.

STANDARD FEATURES

- **P8X32A Propeller processor** (32-bit x8 cores)
- **USB serial interface**
- **RS-232 serial port** – DB9 full 8 wire DTE
- Dual **RS-485** ports or single **RS-422**
- **VGA** or **TV** composite video PAL/NTSC
- **Audio** output – sound effects, WAV file playback
- **PS/2 Keyboard** and I2C expansion port
- 6 bright **Indicator LEDs**

APPLICATIONS

- USB/RS232/RS422/RS485/LAN/Fibre Serial converter
- MODBUS and other protocols
- PC to PLC programming or bus communications
- Networked Operator Terminal
- PLC to PLC over TCP/IP
- Serial to VGA/TV display controller terminal
- Multi-protocol Hub
- Optical Fibre Modems
- Application Specific Computer
- Information Terminals



CONFIGURATION OPTIONS

- Internal secure serial **Flash**
- **RTC** time and date with backup power
- Dual “**open-collector**” MOSFET outputs
- **SD memory card** slot
- **LAN** Ethernet port – TCP IP, UDP, HTTP, FTP, TELNET
- **Optical FIBRE** transceiver using single-mode fibre

OPERATION

CPU

Conventional CPUs are interrupt driven single cores with general-purpose peripheral circuits. The Widget is different in that it uses the Parallax Propeller chip which is comprised of eight 20MIP 32-bit CPUs integrated onto a single chip. These CPUs called COGs are capable of emulating hardware peripherals in software in a deterministic real-time manner as well as general processing. As all I/O is general-purpose the ports may be retasked to suit applicationspecific requirements.

VGA

The standard text display mode of 80x25 may be changed up to 128x64 or down to . Software emulates standard VT-100 ANSI mode as the VGA is used as a terminal console in conjunction with a keyboard. The VGA signals are combined on an RJ45 connector with TV and audio signals.

AV

Either baseband or modulated TV signals can be generated with optional aural sub-carrier. The text resolution is limited by the resolution of TV displays which are not as good at displaying high resolution information as VGA displays. Analog audio (mono) either synthesized or from wave files are output on

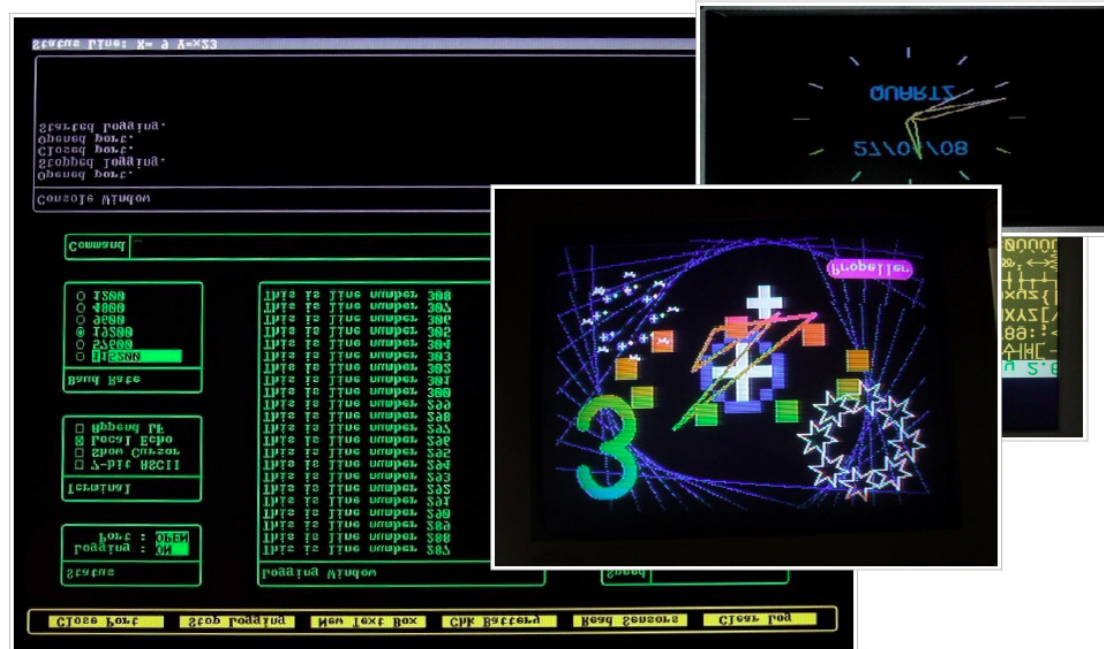
the AV connector as standard 1V unbuffered audio suitable for external amplification.

USB

A standard type B connection makes connection to USB host devices such as PCs possible. The USB port appears as a communications class device and is assigned a COMPORT by most PC operating systems. The port can be connected at up to 2Mbits/sec full-duplex and is electrically isolated from the external ports.

PS/2

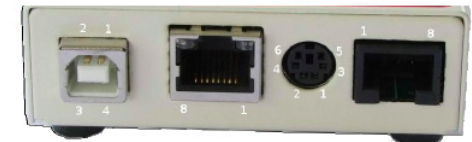
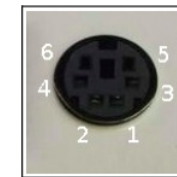
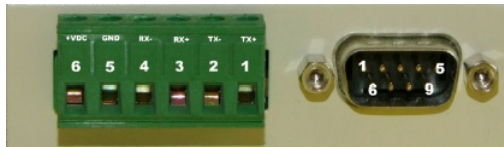
PS/2 interfaces include keyboards and mice as well as other HIDs common to PCs. Although the port is labelled Keyboard it is totally under software control and in combination with the I2C bus signals also on the connector it is possible to run I2C or SPI devices straight from these ports.



SPECIFICATIONS	
Supply Voltage	12...24VDC
Current	200ma @ 12V
Physical	78mm x 70mm x 15mm (WLH)
Weight	220g
Case	1mm Steel, zinc passivated
Environment	0°C to +70°C operating
Standards	IEC 1010; AS/NZS 3548 EMI/EMC; C Tick compliant
CPU	P8X32A 8x32-bit CPU, 48kB RAM, 32kB ROM, 64kB EEPROM

PORTS	
RS-232	110 – 460.8K baud, all formats supported, DB9
RS-422	110 – 2M baud, all formats supported, multidrop capable
USB	USB 2.0, FT232R USB UART slave, Standard B connection
LAN	10/100 RJ45, TCP, UDP, TELNET
VGA	32x16 to 128x64, 64 colors, text/graphics on 1024x768 signal
PS/2	Keyboard, Mouse

CONNECTIONS



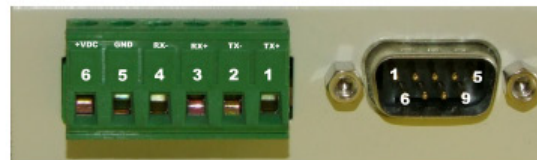
RS-232		DB9 DTE	
1	DCD	In	1
2	RXD	In	Receive Data
3	TXD	Out	Transmit Data
4	DTR	Out	Data Terminal Ready
5	GND		
6	DSR	In	Data Set Ready
7	RTS	Out	RTS output
8	CTS	In	CTS output
9	RI	In	

RS-435		RS422 or OUTPUTS	
1	RS485 A	IO	RX+ or OUT1
2	RS485 B	IO	RX- or OUT2
3	RS485 A	IO	TX+
4	RS485 B	IO	TX-
5	GND	GND	
6	+VDC	In	+VDC

PS/2		MINI DIN 6	
1	DAT	IO	PS/2 DATA I/O
2	SDA	IO	I2C DATA
3	GND		
4	+5V	O	
5	CLK	O	PS/2 CLOCK
6	SCL	IO	I2C CLOCK

VIDEO		RJ45	
1	GND		
2	AUDIO	O	Line level audio
3	TV	O	Composite NTSC or RF
4	VSYN	O	VGA Vertical synch
5	HSYN	O	VGA Horizontal synch
6	BLUE	O	VGA Blue
7	GREEN	O	VGA Green
8	RED	o	VGA Red

PRODUCT IMAGES



DESCRIPTION

Serial datalogging is performed by the CE1067 which is a preconfigured CE0972 Widget especially for this application. The main difference is that the Widget replaces a RS485 port with two switched MOSFET outputs which are normally used for alarm purposes and is supplied with an SD card.

Serial datalogging can be configured to automatically timestamp each line of text and also to write to SD on line terminators or timeouts or both. As characters are received they are temporarily buffered until a terminator is received or if no more characters are received within a timeout period. When the buffer is ready it is written to the SD card and appended to the end of the current log file. Also if the buffer becomes full it will automatically append to the log file. While the file is being written any data being received will still be buffered in the primary communications buffers before being processed.

CONFIGURATION FILE

V2.3 firmware will have the facility to read a customer configuration file CONFIG.INI from the SD card automatically. This file is in a text format that can be easily edited on any PC which permits units to be configured without access to the unit or its USB serial port.

CONFIGURATION FILE SETTINGS:

BAUD: 9600
DATA BITS: 8
TERMINATOR: \$0D
TIMEOUT: 500ms
TIMESTAMP: LEFT
FORMAT: CR,LF,DD/MM/YY HH:MM:SS
CONDITIONS: TERMINATOR ONLY
FILENAME: LOG-0001.TXT
MAX SIZE: 1M

USB SERIAL PORT

Various commands and diagnostics may be performed via the on-board USB serial port. This port is also used for firmware reprogramming. Most PC operating systems have the USB driver built-in and a standard serial port terminal emulator such as TeraTerm or Hyperterminal may be used.

The connection speed is set to 115.2K baud with 8 data, 1 stop bits and no parity.

```
HARDWARE: CE1067 WIDGET
FIRMWARE: RS232 LOGGER
V2.2 110404-1200
=====
MAIN MENU 04/04/11 16:20:33
=====
<ESC> cancel entry and list help
commands
D List directory
& Echo real-time log data to terminal
/ Set or check date
: Set or check time
= Set or check terminator character
* Set or check terminator timeout [in
ms]
N Close current log file and start a
new one
=====
Mounting Card msg#0 Success
Total file size = 0
CMD>
```