M-PC2 • Rugged Centrino In-vehicle PC

Designed specifically for the harsh vehicle environment, the M-PC2 manages shock, vibration, temperature and voltages. The system unit and range of high brightness TFT touch screens resist moisture and dust. Screen sizes of 8.4, 10.4 and 12.1 inches support a solution to fit all vehicle types.

The system supports the Pentium® M Centrino 1.8GHz CPU, offering class leading performance and low power consumption. The system also includes 4 Philips 7130 frame grabbers which can be used multiplexed for mutli camera support or offer full 25/30 frame per second capture on 4 dedicated cameras.

The optional integrated GPS, 3G and WLAN all benefit from rugged SMA connectors supporting the installation of remote antennas. Memory can be specified as 512MB, 1GB, 1.5GB or 2GB. Ethernet, Sound and USB2 are included as are 4 serial ports. Unlike a laptop, in-vehicle PCs have to survive constant vibration. Exhaustive qualification at Microbus's own Shock and Vibration Test facility ensures the system design meets the UK defacto figures.

While offering a wealth of features and connectivity, the light-weight, compact system offers ease of installation into vehicles and occupies minimum space.

- 4 PAL/NTSC inputs for multi camera support
- Full shock and vibration tested system
- WLAN, 3G, GPS, LAN, Sound, USB2, serial
- Optically isolated Digital I/O (8 in, 8 out), 4 Analogue
- Pentium® M 1.8GHz CPU or Celeron® 1.3GHz
- 80GB of mass storage or 40GB secure disk
- Windows® 2000/XP with Microbus vehicle-specific extensions

True integration with vehicle voltages supports organised shut-down of Windows® and Microbus's own vehicle-specific extensions support control of the ignition, vehicle battery low shutdown, OnScreen task switching and a host of other advanced features.

Microbus

Driving vehicle PC technology forward

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Operating systems	Windows® XP, Windows® 2000
Touchscreen units	
Flat panels	High brightness TFT colour VGA, SVGA & XGA screens: 8.4, 10.4, 12.1 • Other sizes available
On/off switch	Controls power to main unit with automatic Windows shutdown during power off
LED indicators	Power on and hard disk heater
	(See separate 'Screens' datasheet for more detailed information)
CPU specification	
Processor	Intel® Pentium® M (Centrino™ class) 1.8GHz (Note 1) • Bus speed 400MHz
	Intel® Celeron® 1.3GHZ
Memory	512MB to 2GB
Cache, level 1	32KB Instruction cache + 32KB Write-back data cache
Cache, level 2	Pentium® M 1.8GHz: 2MB, Celeron® :512KB
Video controller	Intel® Extreme 2 with unified memory
System specification	
Primary screen output	A single connector carrying touchscreen interface, power and panel data
Other screen outputs	CRT output, optional PAL and NTSC
USB	USB 2.0
Expansion	Mini PCI
WiFi	WiFi Centrino™ compatible - optional Wireless LAN with remote antenna connection and hardware module (Note1)
Ethernet	10/100 Mbs
Camera input	Up to 4 independent Composite or S-Video inputs (PAL, SECAM & NTSC). Each input may be multiplexed to additional inputs.
Hard drive	80GB or 40GB Enhanced Secure Disk
Sound	AC97 stereo sound
Digital I/O	Optically isolated 8 inputs and 8 outputs option
Analogue I/O	4: 3 channels 0-16V, 1 channel 0-28V option
Parallel & serial	1 parallel & 4 external RS232 channels. 4 channels are available internally for GPS, touch screen, 3G 1 and 2
GPS	Optional integral GPS with remote antenna
3G	Optional 1 or 2 internal 3G dual band modules with remote antenna
Hard disk heater	Temperature controlled heater to maintain the hard disk's safe operation
Backup service battery	Optional, automatically operates when primary power is lost • System-controlled charging
Protective cage	Perforated metal cage providing additional protection for the system unit and connectors (See separate leaflet)
Keyboard options	Rugged, backlit and wireless (I/R) keyboards available (See separate 'Keyboards' datasheet for more information)
Cables	
Main to screen	Up to 15 metres for all signals including PanelLink™ from main unit to touchscreen
Power	2 metre power lead with connector
Support utilities	Microbus® OnScreen Task Switch software features a wide range of support utilities including control of brightness, shutdown and control of the user's menu options.
Power	External 12V from vehicle battery • Input range 7.5V to 18V • 18V to 32V
Consumption	M-PC2(S) 1.8GHz with 8.4 inch TFT screen:
	1.85A typical at 13.6V under Windows® 2000
	2.75A maximum at 13.6V under Windows® 2000
Temperature range	
Operating	-10°C to +55°C
Storage	-20°C to +70°C
Humidity	0 to 95% RH non-condensing
Shock & vibration	
Random vibration	2-200Hz bandwidth 1.04 grms
Shock	20G 11ms half sine • 45G 3ms half sine
Size & weight	250 x 190 x 105mm • Weight approximately 1.9Kg, varies with specification (System unit only)
Certification	A&ES5 Issue 9 - Class 1 Pass - Certified by A&ES, Communications Directorate of NPIA
	e mark approval no. e11*72/245*95/54*0361*06
	E mark approval no. 10R-020361
	EMC CE Class
	ISO 7637
Warranty	12 months return to base

Notes to table

1. If WiFi option is not selected then no hardware will be fitted and therefore can never be enabled

Microbus Ltd
Treadaway Hill, Loudwater
High Wycombe, Bucks HP10 9QL UK
Tel: +44 (0) 1628 537333
Fax: +44 (0) 1628 537334
email: sales@microbus.com
www.mobile-data.com

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