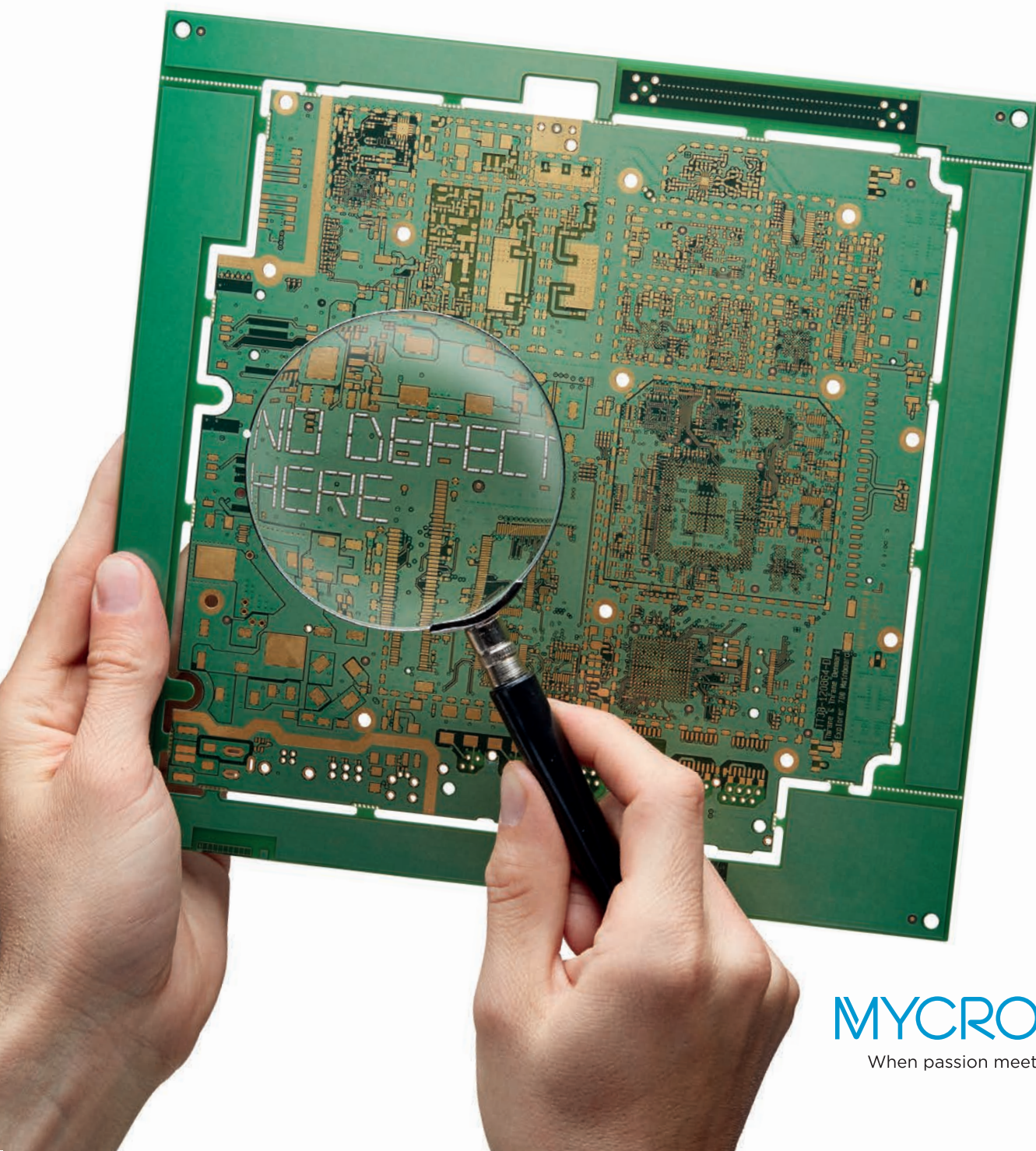


PI series 3D SPI

Accurate solder paste inspection with unprecedented simplicity



France-based Vi TECHNOLOGY, a global pioneer in 3D AOI and SPI, is now part of the Mycronic Group. Already used by leading global manufacturers of aerospace, automotive and consumer electronics, Vi TECHNOLOGY's inspection solutions offer a uniquely integrated, accurate and scalable architecture - an ideal complement to the Mycronic 4.0 intelligent factory.



Goodbye defects. Hello solder paste perfection.

What are the most common defects in your SMT line? And what would you save if you could catch them earlier in your process - or even eliminate them from your design altogether?

If you're like most manufacturers, the answers to these questions will likely bring you back to the solder paste printing process. Because this is where more than 61% of all SMT defects originate, according to our latest industry survey. Whether the problem is solder shorts or insufficient solder paste deposits, accurate solder paste inspection is often the most economical way to detect, predict and prevent defects before they occur.

As solder paste deposits continue to decrease in size, the value of advanced SPI analysis will only grow over time. This is precisely what makes the innovative PI Series 3D SPI system an increasingly critical part of a complete metrology solution. It allows you to measure paste volume with unmatched accuracy and unprecedented simplicity. So that you can continually improve your process and tolerance settings - and take advantage of the unambiguous real-time information you need to take your yield to new heights.

It's one more part of the Mycronic 4.0 intelligent factory, and one step closer to perfection.



PI series 3D SPI

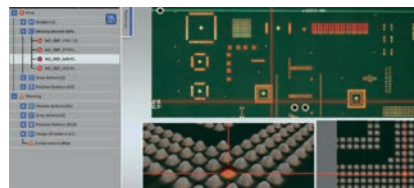
Perfect solder joints made simple

Measure paste volume with extreme precision. Improve your process and tolerance settings with automatic pad grouping. And monitor your process in real time, both online and offline. The PI series gives you highly accurate SPI data, combined with a range of smart auto-programming functions that ensure high-quality inspection regardless of operator experience.



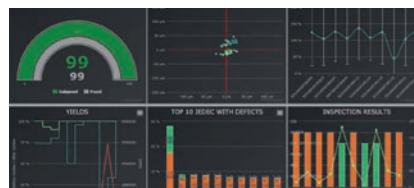
ACCURATE Z-REFERENCING TECHNOLOGY

Captures hundreds of references across an ultra-large 55 x 350 mm 3D field of view.



SIMPLE AUTO-PROGRAMMING

Ensure high-quality inspection regardless of operator experience with the industry's only auto-programming SPI.



REPEATABLE PROCESS RESULTS

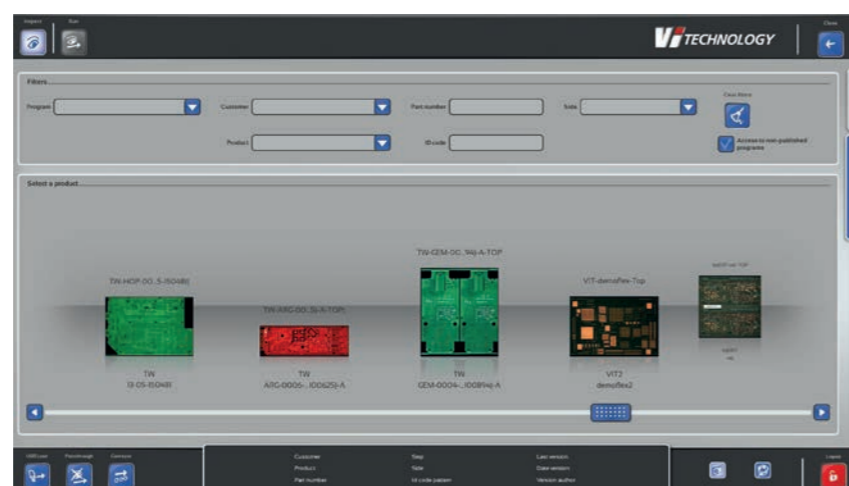
Unique warp compensation delivers accurate measurements in real production environments, with no false calls.



Clear and simple inspection control

Thanks to a natural touchscreen interface, the PI Series can easily be set up and run by anyone with just an hour's training. This intuitive design allows any operator to quickly access the system's full capabilities with no additional calibration or fine-tuning.

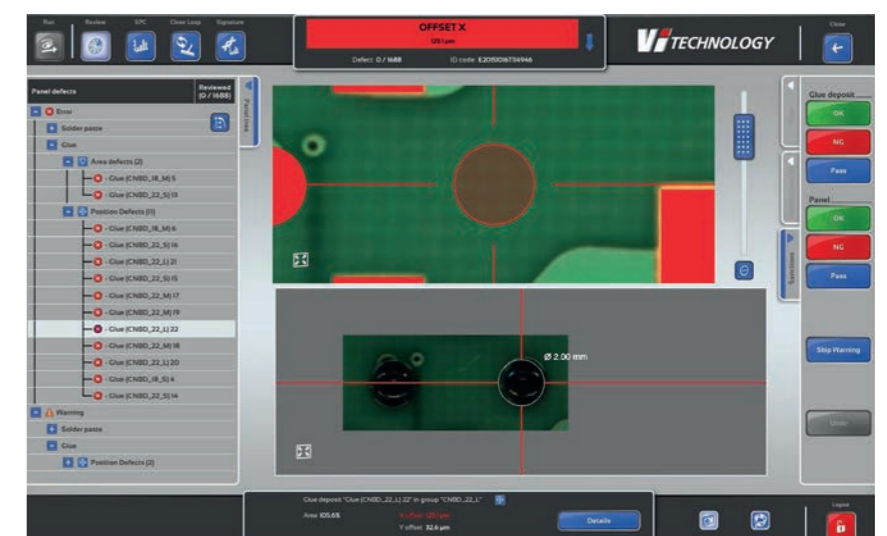
- **Intuitive touchscreen interface** makes all system capabilities easy to access and navigate, with no need for keyboard or mouse inputs.
- **Automatic calibration** is carried out with the touch of a button.
- **Consistent performance over time** is ensured by embedded geometric and radiometric calibration tools, which also guarantee machine-to-machine portability.



Effortless auto-programming

The industry's only auto-programming SPI system, the PI Series requires only a single bare board scan to accurately program itself. No fine tuning. No manual calibration. And no unnecessary training times needed to bring programmers or operators up to speed.

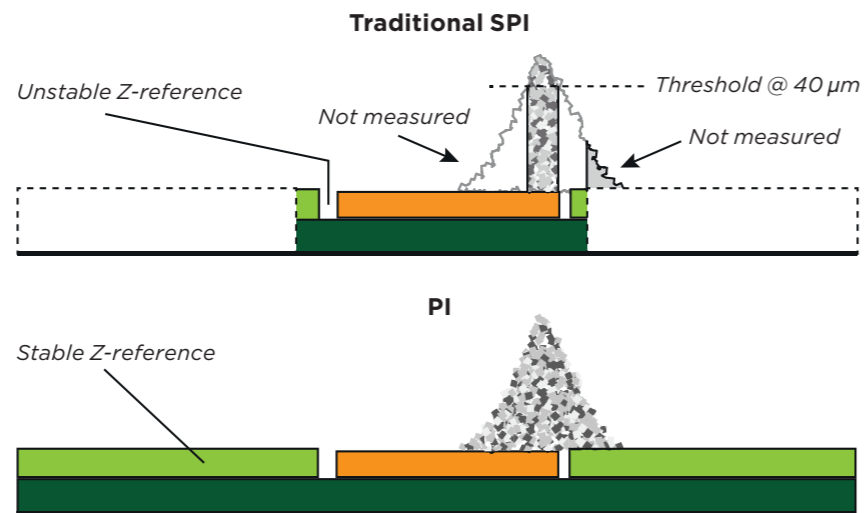
- **Let the system program itself** with just one bare board scan.
- **No fine tuning required** due to smart auto-programming functions. Performance remains consistent regardless of color or finish variations, making the PI Series ideal for new product introductions.
- **Simultaneous glue dot inspection** capabilities, in addition to paste inspection.



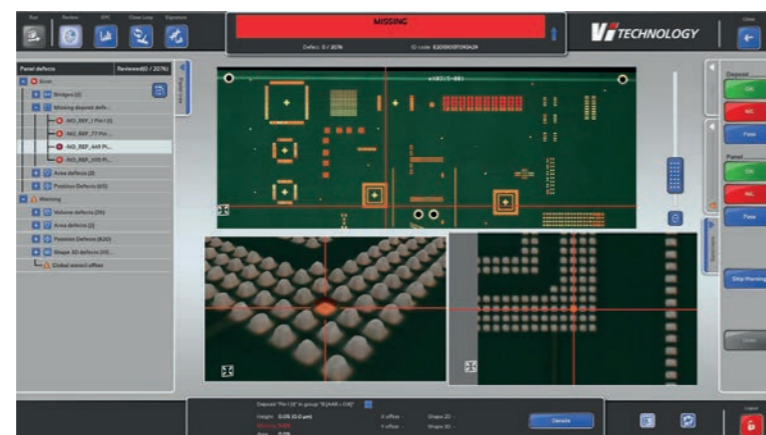
Measure paste volume with unmatched accuracy

The PI Series' patented Z-referencing technology captures hundreds of references across an ultra-large 3D field of view, giving you unprecedented accuracy for even the smallest paste volume measurements.

- **Highly accurate paste volume measurement** using a patented Z-referencing technology that overcomes the limitations of traditional SPI systems.
- **Superior accuracy in real production environments, with no false calls** due to a unique warp compensation enabled by multi-frequency, multi-pattern moiré, combined with patented dual Z-axis motion.
- **Unambiguous information for defect classification** with high-resolution textured 3D images.



Traditional SPI: The typical threshold for a traditional SPI is usually 40 micrometers (μm), meaning height and volume under this limit goes unmeasured. As a result, volume is underestimated on small pads, precisely when you need to know how much paste is truly deposited.

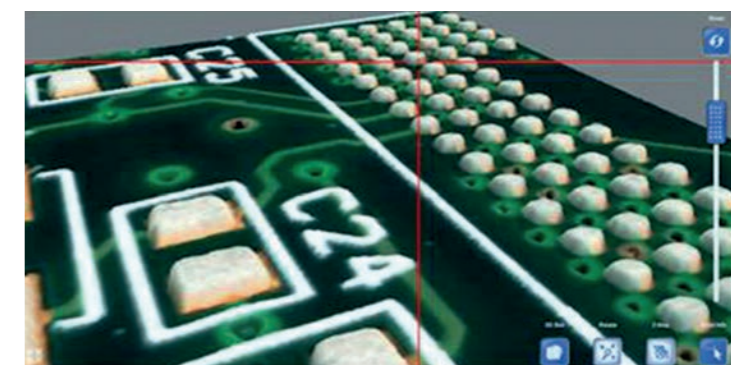


PI Series: PI's patented Z-referencing method leverages the entire textured 3D board information, rather than just cropped images around the pads, to define a stable and accurate Z-reference.

Take control over your print process

PI's automatic pad grouping by AAR (Area Aperture Ratio) allows you to continuously improve your process and set tolerances independently of products. Together with the SIGMA Link software suite, this means you can transform your inspection data into actionable process information.

- **Improve your process** and set tolerances independently of products with meaningful automatic pad grouping by AAR.
- **Gain new insights into your process** with extra-large review images in textured 3D for easy diagnostics.
- **Monitor your process in real time** with SIGMA Analysis, which helps you report and monitor your progress with useful trend analyses.



PI series 3D SPI

State-of-the-art design



Robust conception, smart access and built-in manual for fast and easy maintenance, every aspect has been designed to simplify your operations.

INSPECTION TECHNOLOGY	PI PICO	PI PRIMO
3D engine	360° Moiré - Shadow free, Multi-camera, Multi-projector, Multi-pattern	
Camera	80 Mpixel, 12-bit CMOS sensor	160 Mpixel, 12-bit CMOS sensor
Image resolution	15 µm	
Projection	4 HD, 10-bit industrial projectors	8 HD, 10-bit industrial projectors
Field of View (X x Y)	160 mm x 55 mm	350 mm x 55 mm
Lighting	White LED + RGB lighting	
Warp compensation	+/- 5 mm with dual Z axis motion for real time Z and θ adjustments	
Z-reference	Full PCB inspection for Z-referencing with no cropping around pads	

INSPECTION PERFORMANCE	PI PICO	PI PRIMO
Measurements	Height, Area, Volume, Offset, Bridging, Shape 2D, Shape 3D, Coplanarity	
Defect types	Insufficient / Excessive / Missing paste, Bridge, Shape 2D, Shape 3D, User defined defect, Foreign material, Paste pollution	
Minimum paste deposit size	150 µm x 150 µm	
Maximum paste deposit size	20 mm x 20 mm	
Maximum paste height	400 µm (consult for higher paste height)	
Height resolution	100 nm	
Height accuracy	< 2 µm on Certification target at operating temperature	
Height repeatability	< 1 µm @ 3σ on Certification target at operating temperature	
Volume repeatability	< 3% @ 3σ on PCB at operating temperature	
Gage R&R	< 10%	
Inspection speed	3 sec per Field of View	

SOFTWARE SUITE	PI PICO	PI PRIMO
Offline programming software	SIGMA Data Import (Gerber, CAD data, glue deposit data)	
Online SPC	Alerts in case of process drift	

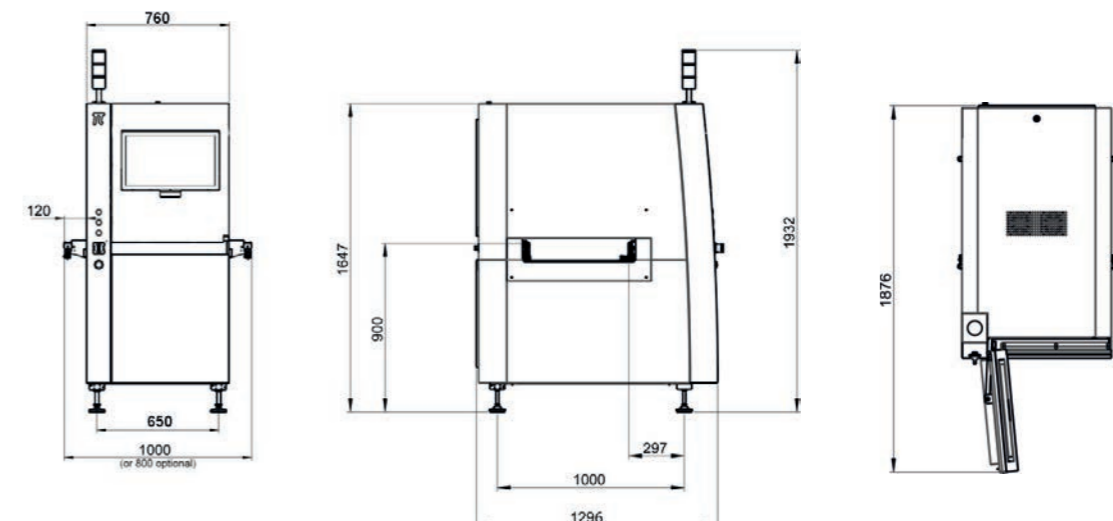
SYSTEM	PI PICO	PI PRIMO
Operating system	Linux	
Storage capacity	6TB including 4TB in RAID 1	
Axis motion	Stepper motor and linear optical encoder (1µm resolution)	

OPTIONS	PI PICO	PI PRIMO
External barcode readers (1D/2D)	Cognex DM 150 (requires 1000mm conveyor)	
Internal barcode readers (1D/2D)	Software option enabling reading from inspection head	
Uninterruptible power supply	For PC / 230 V	
Closed loop with stencil printer	Available for all major stencil printer brands	
Glue deposit inspection	Simultaneous inspection for paste and glue	
M2M conveying mode	Kit to implement IPC HERMES 9852 protocol	
Other options available	Please contact us	

FACILITIES	PI PICO	PI PRIMO
Interface	IPC-SMEMA-9851	
Power requirements	Single Phase 2P+ Earth, 100 - 240 VAC / 16A, no need for compressed air	
Dimensions in mm (W x D x H)	1000 (800 optional) x 1296 x 1932 (adjustable height)	
Weight	430 kg	
Operating temperature	15°C to 30°C	
Relative humidity	20-75% (without condensing)	

PCB HANDLING	PI PICO		PI PRIMO			
	S	M	S	M	L	XL
Minimum PCB dimensions	51 mm x 51 mm (2 x 2 inch)					
Maximum PCB dimensions (X x Y)	350 x 533 mm (14 x 21 inch)	533 x 533 mm (21 x 21 inch)	350 x 533 mm (14 x 21 inch)	533 x 533 mm (21 x 21 inch)	609 x 533 mm (24 x 21 inch)	762 x 533 mm (30 x 21 inch)
Minimum PCB thickness	0,1 mm					
Maximum PCB thickness						7,5 mm
Minimum edge clearance	3 mm					
Top clearance	20 mm					
Bottom clearance	50 mm					
Conveying direction	Left to right - Right to left - Left to left - Right to right					
Conveyor width adjustment	Automatic					
Conveying height	830 mm to 930 mm (standard) / 900 mm to 1000 mm (option)					
Conveyor length	1000 mm (standard) 800 mm (option)	1000 mm	1000 mm (standard) 800 mm (option)	1000 mm	1250 mm	
Maximum PCB weight	4 kg					4,5 kg

DIMENSIONS PI PICO AND PI PRIMO



SWEDEN
Mycronic AB
PO Box 3141
Nytorpsvägen 9
SE-183 03 Täby
Sweden
Tel: +46 8 638 52 00

CHINA
Mycronic Co., Ltd
Unit 106, E Block
Lane 168, Da Duhe Road.
Putuo District, 200062
Shanghai P.R. China
Tel: +86 21 3252 3785/86

FRANCE
Mycronic S.A.S.
1 rue de Traversière - CS 80045
94513 Rungis Cedex 1
France
Tel: +33 1 41 80 15 80

Vi TECHNOLOGY
Rue de Rochepleine
38120 Saint Egrève
France
Tel: +33 4 7675 8565

GERMANY
Mycronic GmbH
Biberger Straße 93
D-82008 Unterhaching bei München
Germany
Tel: +49 89 4524248-0

JAPAN
Mycronic Technologies KK
Chofu Center Bldg.
1-18-1 Chofugaoka, Chofu-shi
Tokyo 182-0021
Japan
Tel: +81 42 433 9400

NETHERLANDS
Mycronic B.V.
High Tech Campus 10
5656 AE
Eindhoven
Netherlands
Tel: +31 402 62 06 67

SINGAPORE
Mycronic Pte., Ltd.
9 Tagore Lane, #02-08/09
9@Tagore
Singapore 787472
Tel: +65 6281 7997

SOUTH KOREA
Mycronic Co. Ltd.
3rd Floor, Jung-San
Bldg. 1026-8
Sanbon-Dong, Gunpo-Si
Gyeonggi-Do, 15808
South Korea
Tel: +82 31 387 5111

UK
Mycronic Ltd.
Unit 2, Concept Park
Innovation Close
Poole, Dorset, BH12 4QT
UK
Tel: +44 1202 723 585

USA
Mycronic Inc.
320 Newburyport Turnpike
Rowley, MA 01969
USA
Tel: +1 978 948 6919

mycronic.com