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MICRO

MEASUREMENT AND CONTROL

SYSTEMS CATALOGUE

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Measurement and Control Systems Catalogue

1. Introduction
2. Systems
3. Windows Software
4. Technical Notes
5. Hardware Specifications

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Section 1

Introduction

Welcome to the *Microlink Measurement and Control Systems Catalogue*, we hope you find it useful and informative. It has been designed to give you an overview of the systems and services we offer and to convince you that we can design a MICROLINK system to suit your application.

MICROLINK systems use a personal computer to acquire and analyse data, make measurements, conduct tests or monitor and control an industrial process. We are able to supply and recommend a variety of computer systems and peripheral hardware—just call us if you have something specific in mind. If you wish we can supply a kit of parts for you to build your own system; alternatively we can handle the complete package for you from initial briefing, planning, system specification, installation and product training. From then on you can always call for free technical support.

How to use this Catalogue

The Catalogue is divided into 5 Sections.

- Section 1 Introduces the Company and explains how we offer a cost-effective systems integration service.
- Section 2 Highlights the benefits of computerised measurement and control systems and gives specific examples.
- Section 3 Shows the components used to build systems, including the major software packages we supply and a summary of the hardware.
- Section 4 Is a reference guide to what the hardware specifications really mean and their relevance to measurement systems.
- Section 5 Gives comprehensive information about the hardware.

The Company

Microlink Measurement and Control Systems Ltd is a division of Biodata, a British company established in 1973. Biodata manufacture the MICROLINK range of data acquisition and control products and we use these, and other quality assured products, to provide a complete systems building service.

Quality

When considering a measurement and control system you need to be sure that not only is it what you want on day one, but that it can be maintained and, if necessary, replicated or modified in a few years time. In 1990 the company was one of the first measurement and control companies in the UK to achieve certification to ISO 9001 (BS 5750, EN 29001), which covers all aspects of our operation from design through to after-sales support. We can repair, recreate or modify any system we manufacture.



Certificate No FM 10631
EN ISO 9001 : 1994

INTRODUCTION

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Sales Engineers

Our aim is to understand your requirement and to supply a system to satisfy your need. This understanding begins with your initial contact with the Sales Office and continues with the on-site visits by our skilled graduate sales engineers. They are well used to involving themselves in a wide variety of projects. Their task is to discuss your project, in your terms, and to help translate your requirements into specifications in electronics, computer and software terms. They are pleased to demonstrate how MICROLINK systems can be quickly set-up to access the real signals from your equipment. We believe you will find that a discussion with our sales engineers will make a very valuable contribution to the development of your project.

Bespoke Design

The MICROLINK system has developed in response to users' requests for solutions to ever widening data acquisition and control problems. We recognise that many projects, if they are to perform as originally intended, may require specialised items of hardware—to interface a special transducer or to switch signals with unusual characteristics, for instance. Because the measurement hardware is designed and built by us, we are able to provide an excellent design modification service; and, importantly, to provide continuing after-sales support for these design modifications. We find that typically minor, low cost, changes to hardware can have a dramatic effect on the productivity of systems, meeting your requirement rather than changing it.

Windows Software

The key to a measurement and control system that works, and that people will use, is the software. It must be consistent, intuitive and tolerant of the occasional wrong entry. Microsoft Windows has become the dominant operating environment for PCs and lends itself to these criteria. It is a "multi-tasking" environment and allows several programs to run side by side—enabling you to pick and choose the software to suit your application.

We offer a range of Windows engineering software, detailed in Section 3. These packages can pass data between themselves as needed so a combination of

off-the-shelf software can be combined in a single system, significantly reducing costs. We offer modular software, so you only need to buy those part of the range you need, with the option for later expansion. Particular elements of the process, however, may benefit from custom software for your task. Our software engineers can specify and produce this for you.

Free After-Sales Support

Our technical support is second to none. Since we design and build the hardware and software, the answer to nearly every question about even the most complex system can be found from an expert working in the same building.

The Bottom Line

Computerised measurement and control projects are used for a whole variety of reasons, ranging from the purely **financial**—where the computerised system can be shown to reduce costs; through **quality improvements**—such as better process monitoring and understanding, or by more exhaustive product testing; through to purely **research and development** reasons—to see whether something can be done, or under what conditions a process can be made to work economically. Whatever your reason for considering such a project, you should talk to us because we build systems that do save money, do lead to quality improvements and do provide the information required.

The Products

- Range of computerised measurement and control hardware and software, united by a common user interface.

The Service

- Systems Integrators to the Industrial, Laboratory and Education markets.

The Users

- MICROLINK systems have been used in many different industries by many different companies; some of our more recent customers are detailed on the facing page.

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Section 5

HARDWARE SPECIFICATIONS

The MICROLINK Range

MICROLINK: a range of modular data acquisition and control hardware in a variety of physical formats, united by a common software interface.

The following tables should help you decide which MICROLINK Series best suits your application.

The MICROLINK Hardware

500 Series	Range of data acquisition and control cards that plug into the expansion slot of a PC. Sampling rate: up to 250 kHz.
600 Series	A network unit holding a PC plug-in card. Sampling rate: up to 250 kHz. Distance from computer: up to 185 m per Ethernet segment.
1500 Series	A distributed measurement and control system for industrial applications. The DIN rail mounted system is expandable to over 1000 channels. Sampling rate: up to 20 Hz. Distance from computer: up to 1 km.
3000 Series	An external frame into which up to 18 I/O modules are fitted. A choice of over forty interchangeable modules make the MICROLINK 3000 extremely versatile and suitable for laboratory and industrial environments. Sampling rate: up to 50 kHz. Distance from computer: up to 1 km.
4000 Series	A waveform capture and synthesis system. Sampling rate: up to 10 MHz per channel. Distance from computer: up to 2 m.

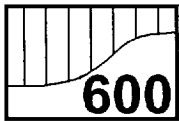
Different types of hardware can be combined. A system may contain a 550 plug-in card, a 3000 Series frame and laboratory hardware such as an electronic balance, for instance. In this section the hardware is grouped according to Series and module type. For example, the modules of the 3000 Series are grouped in different ranges: the 301x range providing a choice of digital input and output options; the 302x range providing timing and counting options, and so on.

THE MICROLINK RANGE

MICROLINK

	500	600	1500	3000	4000
Input Types					
Voltage	✓	✓	✓	✓	✓
High impedance probe				✓	
mA Current	✓	✓	✓	✓	
Thermocouple	✓	✓	✓	✓	
Resistance			✓	✓	
Excitation			✓	✓	
Strain gauge bridge	✓	✓	✓	✓	
Digital state	✓	✓	✓	✓	✓
Output Types					
Voltage	✓	✓	✓	✓	✓
mA Current			✓	✓	
Digital state	✓	✓	✓	✓	✓
Relay switching			✓	✓	
A-D Sampling Control					
Software timing and multiplexing	✓	✓	✓	✓	
Internal clock	✓	✓		✓	✓
External clock	✓	✓		✓	✓
Pre-trigger data	✓	✓			✓
Simultaneous sampling				✓	✓
Multiplexed sampling	✓	✓		✓	
Simultaneous digital sampling				✓	✓
Counting					
Pulse counting	✓	✓	✓	✓	
No missing counts			✓	✓	
Cascadable counters			✓	✓	
Up-down counting				✓	
Frequency measurement			✓	✓	
Communications					
ISA bus	✓				
Ethernet		✓		✓	
RS232			✓	✓	
RS485			✓	✓	
GPIB				✓	✓
Windows Software					
Windmill	✓	✓	✓	✓	
SCAN1000	✓	✓	✓	✓	
Windspeed Streamer	✓			✓	
Windspeed WaveCap					✓

Choosing a MICROLINK



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600 HARDWARE

MICROLINK 600 SERIES

Network Nodes

**H
A
R
D
W
A
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NETWORK NODES



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MICROLINK 600 Series Network Nodes



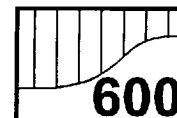
FEATURES

- 650 - 16 analogue inputs
- 651 - 16 analogue inputs, 2 analogue outputs, 16 digital inputs/outputs, 3 counters
- 680 - 16 transient capture inputs
- Low cost measurement and control on Ethernet networks
- Works with Windows for Workgroups, Windows 95 and other network software
- Supplied with ready-to-run measurement software
- All channels independently configured from software
- Local PID control and alarm monitoring
- Presents data values in engineering units of your choice
- Separate cold junction/excitation inputs
- Comprehensive User Manual

NETWORK NODE SUMMARY

	650	651	680
Number of analogue inputs	16	16	16
Number of analogue outputs	0	2	0
Number of digital inputs/outputs	0	16	0
Number of totalise counters	0	3	0
Maximum samples per second	120	120	250 000
Voltage measurement	Yes	Yes	Yes
Cold junction/excitation input	Yes	Yes	Yes
Current option	Yes	Yes	Yes
Thermocouple option	Yes	Yes	Yes
Strain gauge option	Yes	Yes	—
Number of analogue input ranges	4	4	20
Integrating A-D converter	Yes	Yes	—
Resolution of A-D converter	12–18 bits	12–18 bits	12 bits
Automatic A-D recalibration	Yes	Yes	—
Connection	37-way D	37-way D	37-way D
Screw terminal option	Yes	Yes	Yes
Ethernet	10Base2 (ThinNet)	10Base2 (ThinNet)	10Base2 (ThinNet)
Software included	<i>Windmill</i>	<i>Windmill</i>	<i>Wavedisk</i>

ANALOGUE & DIGITAL I/O



THE MICROLINK 600 SERIES

This is a completely new hardware option, designed for **Ethernet networks**. The commonly used Ethernet standard allows fast transfer of data over long distances. Many devices can be connected to a network, each one comprising a *network node*. You can control all the nodes from 1 PC and the measurement data is immediately available to other PCs on the network.

A MICROLINK 600 is a small unit housing a processor, an Ethernet adaptor and a PC plug-in card. The plug-in card is usually chosen from the MICROLINK 500 Series, although other manufacturers' cards could be substituted—contact the Sales Office for details. The 600 unit can be wall mounted or free standing.

The 600 unit is intelligent. This means that it can convert raw data to engineering units locally, so reducing the workload of the controlling PC. It also allows local alarm monitoring, local PID loop control and automatic configuration of the hardware.

Thirty network nodes can be connected to one segment of an Ethernet cable; this includes MICROLINKs, PCs and other network devices. Each cable segment can be up to 185 m long. If you need more nodes, or greater distances, two or more segments can be linked by *repeaters*.

The 600 is supplied with either *Windmill* or *Wavedisk* software. It provides an excellent low-cost option for distributed measurement and control.

Screw Terminals

The signal connections are made to the 37-way D connector of the plug-in card. Screw terminals can be provided, however, by the 59x Series. This Series also provides current, temperature and bridge monitoring together with extra facilities such as input protection and noise filtering. See pages 5.9–10 for details.

600 Specifications

Type of cabling	10Base2 (also known as Thin Coax or ThinNet)
Max length of cable segment	185 m
Nodes per segment	30
Network operating system	Windows for Workgroups, Windows 95, or compatible
Size of 600 unit	294 x 188 x 79 mm
Max size of plug-in card	122 x 245 mm
Operating temperature	0–50 °C
Power supply	230 V AC

650—16 ANALOGUE INPUTS

A MICROLINK 650 is a 600 unit containing a 550 analogue input card. See page 5.6 for the MICROLINK 550 specifications. It is supplied with *Windmill* software, which runs on the controlling PC.

651—ANALOGUE AND DIGITAL INPUTS AND OUTPUTS

A MICROLINK 651 is a 600 unit containing a 551 multi-function card. See page 5.7 for the MICROLINK 551 specifications. It is supplied with *Windmill* software, which runs on the controlling PC.

680—16 HIGH SPEED INPUTS

A MICROLINK 680 is a 600 unit containing a 580 transient capture card. See page 5.8 for details of the MICROLINK 580 specifications.

The 680 is supplied with *Wavedisk* waveform capture software. This runs in the 600 processor and makes the unit appear as a disk drive within DOS. All the functions are handled as files on this drive, so the system can be used with existing software. It also makes it very easy for you to write your own software, if you so wish. *Wavedisk* supports different file formats so that you can read the data directly into display and analysis software such as *Famos*.

Software Summary

A MICROLINK 600 is usually supplied with *Windmill* or *Wavedisk* software. It can be used with other software however, and seamlessly integrated into existing systems.

Windmill

Ideal for quickly setting up a measurement and control system: includes charting, logging, display and control applications.

Wavedisk

Waveform capture software.

SCAN1000

Supervisory control and data acquisition software.

Excel

A spreadsheet for real-time analysis and control.

Famos

Waveform display and analysis software.

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