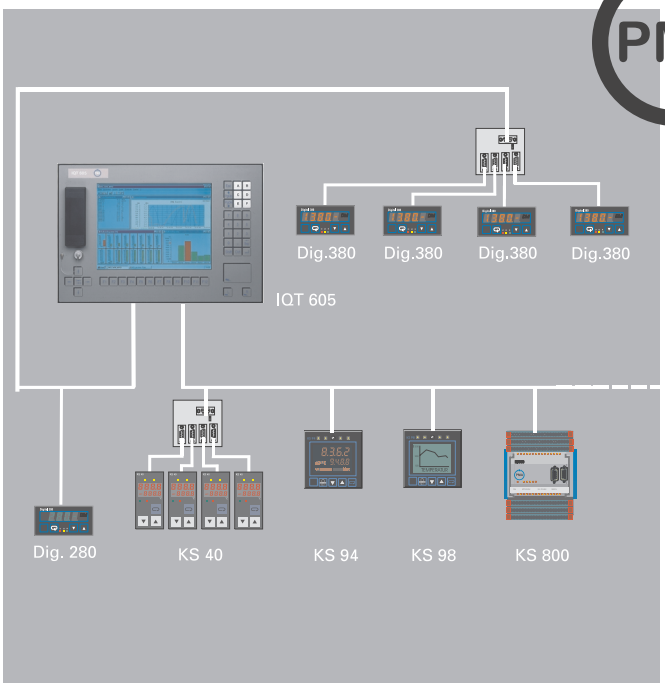


MSI - WPCI
Measured Data Acquisition

and Operator Process Control for 32 ... 1024 measuring points

Digital indicators D 280 +D 380
Data monitors KS3000, KS3002, KS3005, KS3010, KS3012
Industrial controllers KS 40, 50, 90, 92, 94, 98, 800, 816
BluePort®-devices • "Gantner" data acquisition modules
Visualisation of current and historical measured data
Data export in Excel or Access format
Alarm monitoring • Alarm system
Controller operation• Log output
Network-capable • Operator process control

GENERAL

The MSI - WPCI colour-graphic software allows central observation and automatic monitoring of up to 1024 measuring points. The software is a 32-bit-based colour-graphic software package for the Windows NT (Version 4.0) and Windows 95/98 operating systems. The software serves to display, archive and log measured values and store manual entries and is also used for operator control of universal PMA controllers.

This data acquisition is based on any combination of

PMA universal controllers KSXX, KSXX-1
Digital indicators D280 / D380,KS30xx
measured value acquisition modules, the IDL data loggers and the PR 3000 automation and measurement modules.

The drivers for MODBUS RTU and CAN-open are available. Profibus DP driver and MODBUS on TCP .

DESCRIPTION

All versions of the MSI-W PCI colour-graphic software include the following functions:

- Bar charts (up to 16 bars per chart)
- Continuous-line recorder function, up to 6 curves / diagram (x/t and x/y)
- Historical line diagram, up to 6 curves / diagram (x/t and x/y)
- Process image display
- Table output
- Alarm and signal lists
- First-up signals in conjunction with PR3000 modules
- Logs with individual layout
- Language selection German/English.

VERSIONS

No distinction is made between runtime and development licenses for the MSI software. The difference relates solely to the differing number of channels.

- MSI-032-WPCI for up to 32 measuring channels and up to 32 arithmetic channels
- MSI-128-WPCI for up to 128 measuring channels and 128 arithmetic channels
- MSI-1024-WPCI for up to 1024 measuring channels and 1024 arithmetic channels
- MSI network, visualisation and evaluation station within a local area network.

SYSTEM DESCRIPTION

OPERATION

Operation complies with the conventional operating standard for the Windows operating system.

The operator is prompted in a main menu bar (top screen line) and a status bar (bottom line).

If the operator chooses a menu item in the main menu bar, a pull-down window opens providing a selection of further sub-menu items. A button which can be positioned in the menu bar as required is available for individual functions.

MENUS

The software can be adapted to the individual needs of the operating personnel by configuring the menu bar.

Once screen window settings have been made, they can be stored as application points and selected again quickly. This allows fast selection of predefined screen displays.

HELP SYSTEM

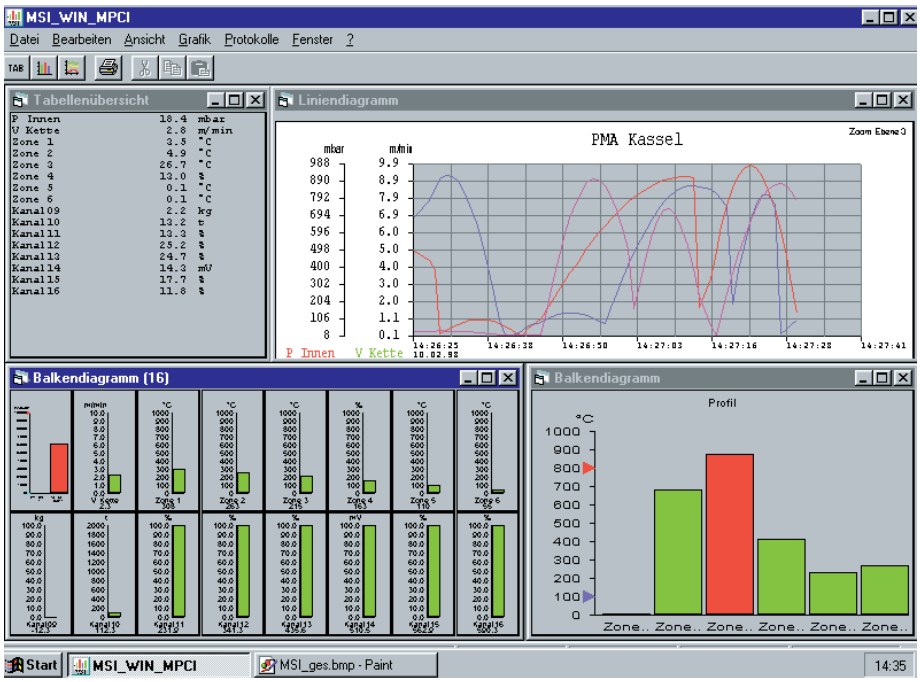
A Help system with Search function is integrated.

MEASURED VALUE ACQUISITION

Process data is acquired by the front-end devices, such as controllers, digital indicators, sensor modules and data loggers, etc. listed on Page 1. These devices measure, linearise, monitor for limit values, alert locally and provide the measured values at the interface or in a buffer. At configurable intervals, the acquisition program of the MSI software fetches the process data from the connected devices and stores it with timestamp on hard disk.

This routine runs in the background. It can thus be run simultaneously with other programs. Up to 4 communication ports with the same or different protocols can be configured. A COM port is assigned to each communication port.

The data is saved either in a ring buffer of configurable size or in endless files. The CHANGE data reduction function offers the option of reducing the quantity of data to be saved without reducing the informative content of the characteristic of the process or test as a function of time. In addition, the measured values can be saved as hourly values in an ACCESS-readable file if required.



Password protection

There are 3 hierarchies for which passwords are required:

- Configuring the system
- Quitting the program (MSI-WPCI)
- Ending background data recording (KERN)

In addition, it is also possible to lock operator control of the process using the password used to quit the program. In addition to the MSI passwords, any security functionalities of the operating system are also available if required.

VISUALISATION FUNCTIONS

All visualisation functions, with the exception of the process image, are configured in the same way. After you select the required graphic function, the channels to be displayed must be selected from a list and the period to be displayed must be defined. This configured graphic can be saved as a menu item and then retrieved whenever required by clicking with the mouse. This is all done online even whilst data is being acquired. Temporary changes can be made at any time in order to be able to analyse the measuring data in targeted fashion in certain cases.

MATHEMATICAL FUNCTIONS

Each channel can be offset with constants and other channels acquired quasi-simultaneously. The formula may contain up to 80 characters.

In addition, arithmetic channels can also be defined corresponding to the number of measuring channels. The following functions are available: ⇨

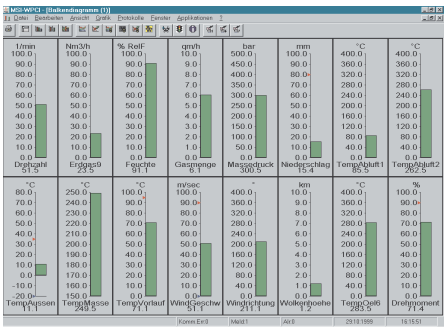
Solution sequence	Operand	Description
1	*, /, %	Multiplication, division, modulus
2	+, -	Addition, subtraction
3	>, >=, <, <=, =,	Less than, equal to or greater than, less than, equal to or less than, equal to, not equal to
4	&	Bit-serial AND
5	|	Bit-serial OR
6	&&	Logical AND
7	||	Logical OR

Function	Description
Sqrt(E)	Square root
Log(E)	Logarithm base 10
Ln(E)	Natural logarithm
Exp(E)	Exponent
Fabs(E)	Absolute value
Pow(x,y)	Exponentiation (x ^ y)

Bar chart

Up to 16 channels can be displayed simultaneously in a bar chart, with differing scales. The current measured values are displayed. The channels are displayed with:

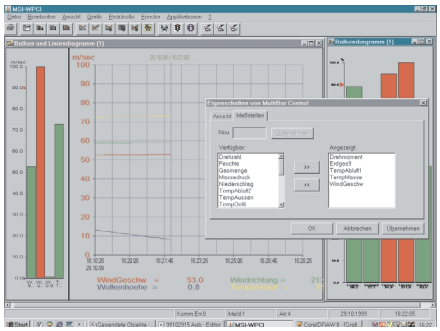
- Measuring point abbreviation (max. 12 characters)
- Numeric measured value
- Measured value as colour analogue bar
- Physical unit



The bar changes its colour automatically if a limit value is overshot or undershot.

Line diagram

Up to 6 measured values can be displayed in a diagram with the continuous-line recorder function. The period to be displayed can be freely selected between 1 and 99999 seconds. The Zoom function allows a part of the diagram to be selected for zooming. Zooming acts on the measured value and time axis.



Besides the x/t display, it is also possible to select an x/y display. In this case, up to 6 signals are displayed online over a freely selectable measuring channel.

Historical line diagram

Up to 6 channels can be displayed simultaneously in an historical diagram. The measured values are displayed for the selected period. The display covers the measured values stored on the hard disk and is defined by entering START and END TIME. The Zoom function allows you to select any period.

Besides the x/t display, it is also possible to choose an x/y display. In this case, the historical values of up to 6 signals are displayed over a freely selectable measuring channel.

Alarm logs

This function allows you to display the alarm signals saved to date. It is also possible to enter a comment which is saved automatically for each alarm signal subsequently in the comment line.

The alarm list can be sorted on the screen by date / time or by measuring points. The alarm list may contain alarms of the connected devices and / or internal alarms (software alarms) of the MSI software.

The software can also be configured so that alarms can trigger mailing of e-mails.

Signal lists

The signal list records all events which help to analyse the cause of the fault in the event of a fault. The signal list may contain signals on the following for instance:

- Launching and quitting the software
- Communication faults
- Output memory overflow on the PR3020
- Each signal is entered with date and time.

Current measured value table

Up to 16 channels can be displayed simultaneously in one table. The display is an alphanumeric display of the current measured values.

A channel is displayed with:

- Measuring point abbreviation (max. 12 characters)
- Measuring point description (max. 30 characters)
- Numeric measured value
- Physical unit (max. 6 characters)

Table output

In addition to output of the historical data in graphic form, this data can also be output numerically. It can be output either as a table on screen or as an ASCII file to hard disk. The start time, end time and measuring channels can be freely selected. Max. 16 channels can be output simultaneously.

The first column always contains the instant of measurement. In the case of output to an ASCII file, this file can be either formatted or unformatted. A delimiter which must be defined additionally ensures that this ASCII file can be imported to other programs (e.g. EXCEL).

Process image

Current measured values are displayed dynamically overlaid on a static background display. These values are displayed by:

- Numeric display
- Line diagram
- Bar graph
- Status field

In addition, operator-control functions can be integrated in the process image in order to set outputs in the connected devices or to write setpoints to controllers.

ADDITIONAL FUNCTIONS:

DATA BACKUP

The data saved to hard disk can be "mirrored" on another computer using the data mirror backup function. The two computers must be interconnected by means of a network for this purpose. If an MSI network version is installed, it is possible to access this data so as to further visualise or evaluate the data.

It is also possible to select constant output in ASCII format with fixed delimiter in place of "mirroring". This allows the raw measuring data to be further-processed with other evaluation programs, e.g. EXCEL. The data can be output in ASCII format either to a local PC or to a network drive.

Buffering of the data ensures that network failures do not lead to data loss. Data mirroring is performed as a background routine in parallel with this. Of course, any backup functions available under Windows 95/98 and NT can also be used.

MSI EVENT

This allows certain functions, such as data export of the hourly values from ACCESS to EXCEL, to be automated. It is also possible to perform standard functions (e.g. XCOPY). This means that these functions are performed automatically each day at the same time.

MSI DATA DESIGNER

Process image

Using the Process Image Editor which is included in the scope of delivery, it is possible to add dynamic functions to a process image (static image section) created with a standard program. Graphics in BMP or WMF format or in any other file format can be used as the static background images.

Log

Simple logs can also be created using the MSI Data Designer. The form and appearance can be configured with the Log Editor. This allows trend diagrams to be linked easily to other data and manual entries in the log.

NETWORK:

The measured data can be transferred via a computer network to another computer in the network for evaluation.

It is also possible to interconnect up to 4 local measured value acquisition computers via the network. This data can also be evaluated using the MSI network version.

OPTIONS:

Screen forms/batch logs

Screen forms can be created for entry of customer-specific resp. product-specific information such as batch number, material designation, product number or material etc. This allows you to create a system-specific or customer-specific operator prompting system for instance for acquiring process and manufacturing information.

Production parameters can thus be recorded batch-specifically. This allows fast "retrieval" of the process variables relating to a batch.

Manual entries

Besides manual entry on the PC, it is also possible to connect a machine terminal to a serial port of the computer in order to be able to enter operating data directly on the system interactively with the MSI software.

Remote data transfer

A remote data transfer function will be integrated at a later point.

Remote diagnosis

It is also possible to buy an optional remote diagnosis software package for the software. This remote diagnosis software package then allows access to the computer by telephone using a modem or ISDN card.

Customer-specific functions

It is possible to integrate customer-specific programs in order to be able to perform specific evaluations, computations or displays not included in the software package's scope of delivery.

COMPUTER HARDWARE AND SOFTWARE SYSTEM REQUIREMENTS

- IBM-compatible PC (Pentium >133 Mhz)
- 32 MB RAM
- 2 GB hard disk
- CD-ROM drive (for installing the program from CD)
- VGA card and monitor
- Serial port
- RS 232 to RS 485 / RS 422 converter
- Windows NT / 2000 / XP

Type	Order No.	Designation
MSI - 032 - WPCI	**9404 - 898 - 57221**	Measured data acquisition and operator process control, including drivers for the PMA process periphery, PR 3000 automation modules and ISM modules, up to **32 process variables**. Operating system Windows NT, Windows 2000, Windows XP
MSI - 128 - WPCI	**9404 - 898 - 57321**	Measured data acquisition and operator process control, including drivers for the PMA process periphery, PR 3000 automation modules and ISM modules, up to **128 process variables**. Operating systemWindows NT, Windows 2000, Windows XP
MSI - 1024 - WPCI	**9404 - 898 - 57421**	Measured data acquisition and operator process control, including drivers for the PMA process periphery, PR 3000 automation modules and ISM modules, up to **1024 process variables**. Operating system Windows NT, Windows 2000, Windows XP
MSI - NETZ	**9404 - 898 - 57601**	Visualisation and evaluation station within a local area network. Used to read all data saved by MSI process stations in a network.

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