

# MICIPS 8

MULTI CHANNEL PROCESS SYSTEM

## Quality-Management-System QMS

### Technical specification MCPS 8

(Part QMZD)



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Project name	MCPS8 Monitoring system
File	S:\CAD-QMS\MCPS 8\Spezifikationen\MCPS8-Technical Specification.docx
Associated documents	[1] MCPS8 Manual

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## 2. FUNCTION OVERVIEW MODULES AND OPTIONS

Basic package MCPS	- Import of Device data (DL, Darwin, LR, OR, VR) from floppy disc
	- Maximum number of devices in the device manager: 200
	- Numerical (Solo window for digital announcement of a channel, text window for free arbitrary announcement of channels) announcement without channel limitation.
	- Graphical (Bar graph, X-Y-Trend window with maximum 5 Y-Axis, absolute/relative/relative hours scaling of the X-Axis, maximum 5 numbers of screens per trend window) announcement without channel limitation.
	- Export of data to MS Excel
	- Export of graphic to the clipboard or to an EMF/BMP-file.
	- Printing of graphic and text.
	- Cursor operations
	- Construction of print formulas / Layoutmanager
	- System of window layouts
	- Safety: The administrator can appoint as much detailed rights of access to users or user groups as he likes: Access ONLY on own projects / Access only on projects of his own group / Access on all projects. Additional it is possible to grant or refuse access on every point of menu to every user.
	- With corresponding device option are 20 project channels supported
	- Test generator Testdrv is implemented (Already available in the demo version.)
	- MCPS-Configuration
	- Project – Configuration
- Import of measurement data per memory download over interface from the intern and/or extern memory of the measurement devices.	
<b><u>Options:</u></b>	<b><u>Short description:</u></b>
C040	- Channel extension up to 40 measurement channels / project
C120	- Channel extension up to 120 measurement channels / project
C200	- Channel extension up to 200 measurement channels / project
C500	- Channel extension up to 500 measurement channels / project
CMX	- Channel extension up to unlimited number of measurement channels (Depending to memory <sup>1)</sup> ) / project
MATH1	- Mathematical basic functions like + - * / ^
	- Statistics (Min-, Max.-values, Mean value, SD, MKT)
	- Mathematical channels
	- Bit test function
MATH2	- Program variable SC, SR
	- MATH1
	- Comparison functions / logical functions: AND, OR, XOR, NOT
	- Min-, Max value functions
	- Summarizing function (SUM) (Maximum 200 of different Accumulations per project)
	- Integrating function (IN) (Maximum 200 of different Integrations per project)
	- Moving average function. (SM) (Maximum 200 different buildings of moving averages per project.)
	- Stability function (SD) (Maximum number of SD-Register is unlimited.)
	- User functions
	- Polynomials
	- Register
- Standard functions: SIN(X), COS(X), TAN(X), SQRT(x), EXP(x),...	
- Special functions: ITG, FRAC, MIN, MEAN, MAX, ID	
MSERV	- Measurement-PC with <b>MSERV</b> -Option places Online data and alarm information at MCPS-Clients' disposal (For Example: <b>NETVIEW</b> ) Establishing of connection up to 15 different measurement PCs with MSERV-option is possible.
	- Remote control from client to start/stop batch or data acquisition, configure a project
REMOTE	- Remote operation for devices with RS 232/RS 422 interface over modem is supported. Processing of online data or memory download.
ALARM	- 8 different software alarm level per channel, alarm delaying, alarm logging, Alarm actions: Relays circuits (See below "Overall view over supported Hardware"), user defined alarm messages. Dynamic alarm monitoring per reference file. Recognition of external device alarms from Yokogawa LR, µR, VR, DX, Darwin. Sending alarms per SMS and/or E-Mail <sup>2)</sup> + <sup>3)</sup>

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<b>SMS-E</b>	- Dispatch of the administrator-, system- and device messages per E-Mail. Dispatch of alarm messages per SMS and/or E-Mail <sup>2)</sup> + <sup>3)</sup>
<b>ERES</b>	- Audittrail generated by the computer, password history, Protection of the measurement-, Log- and configuration files against change. Electronic record, electronic signature → 21 CFR 11 conform.
<b>SCRIPT</b>	- MCPS Scriptengine, Automation interface for the construction of customer defined reports, handing over of measurement data to MS Excel for example, device controlling, special data analysis, a.m.m..
<b>BATCH</b>	- Display and administration of maximum 100 batches in a special control- and supervision window. (More than one simultaneous batch requires a corresponding MPE). - Display of all batches, which are saved in the data base in an explorer window. - Search- and filter functions in the data base - Signature (with <b>ERES</b> - option)
<b>PMON</b>	- Process monitor editor for visualization of process relevant data using bitmaps, AVIs, LEDs, analogue meters, digital values, bargraphs and multibitmaps.
<b>IR</b>	- Functionality for visualization of infrared data.
<b>ISO2D</b>	- Field calculation from a 5x5 matrix with ISO-lines
<b>DLL</b>	- Access to a customized DLL
<b>WEB</b>	- Web-Server for displaying measurement data in the Intra- / Internet with Active Server Pages, Scripting,...
<b>BA-IMP</b>	- Offline-Batchmanager. (Automated) Import of device data into the MCPS-Batchmanager.

<b>DEVICE OPTIONS</b> (Necessary device driver to integrate the corresponding devices in MCPS-projects.)	<b>DA-HR</b>	- Driver for DARWIN, DA/DC100, DR130/231/232/241/242, HR2300/2400/2500, HR 1300, DA 2500, PMS-Series
	<b>GL</b>	- Driver for GL100/240/840
	<b>LR-UR-VR</b>	- Driver for LR 4100/8100/12000, ORM, ORP, OR 1400, VR 100/200, µR 1000/1800, µR 10000, µR20000
	<b>MODBUS</b>	- Universal MODBUS-driver (MODBUS-RTU / MODBUS-TCP)
	<b>MXMW</b>	- Driver for the MX 100 / MW 100
	<b>DX(P)-MV</b>	- Driver for DX/MV 100, DX/MV 200, CX 1000/2000, DX 100P, DX 200P, DX 1000, DX 2000
	<b>OPC-C</b>	- OPC DA client
	<b>OPC-UA</b>	- OPCUA client
	<b>DPM</b>	- Driver for 2531, WT 110/130, WT 200/210/230, WT 1010/1030, WT 1030 M, WT 2010/2030, WT 1600, WT3000, WT1800, WT500 and WT3xx
	<b>MSC</b>	- Driver for Controller, Sensormodule, Digital-Multimeter: A4011/17/18, A6015/17/18 A6050/51/60, ISM110, GSCtrl, PersonalDAQ 55/56, PDQ1/2, PCI-DIO24H/48H/96H, PCI-PDISO 8/16, 4-channel-square-counter-card, PCIP8R8, PCI P16R16, Senso Torq, Gantner e.bloxx, Gantner IDL 100, DCXP, DK-AsciiStream
	<b>ALL</b>	- Universal driver for devices with an ASCII-interface, WITS protocoll
	<b>34970 A</b>	- Driver for Agilent 34970A, 34980A
	<b>KE 2700</b>	- Driver for Keithley Integra Series KE 2700, KE 2701, KE 2750
	<b>A 5000</b>	- Driver for Advantech A 5000
	<b>IRCAM</b>	- Driver for Pyroline / Pyroview, PI-Series
	<b>HLNT</b>	- Driver for HLNT
	<b>DV2D</b>	- Virtual Driver to display data as 2D-miscolor picture.
	<b>M300</b>	- Driver for Rigol M300
	<b>PYM</b>	- Driver for Infrared-Pyrometer (Metis-Series, CT-Series...)
	<b>XL</b>	- Driver for XL 100
	<b>UMB</b>	- Driver for devices with UMB protocol: WS10, WS3000
	<b>KE3700</b>	- Driver for Keithley 3700 - Series
	<b>Easybus</b>	- Driver for Greisinger Easybus devices like EasyLog80
<b>W750</b>	- Driver for WAGO Series 750	
<b>OPUS</b>	- Driver for Lufft OPUS-series	
<b>SmartDac</b>	- Driver for GX10,GX20, GP10,GP20, GM10	
<b>S7</b>	- Driver for Siemens SPS S7-300, S7-400, S7-1200, S7-1500 (>= 7.0.10.1)	

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Multi-Project-Extension (MPE) (See BATCH too.)	MPE 5	- Multi-Project-Extension up to 5 PARALLEL, asynchronous Projects
	MPE 20	- Multi-Project-Extension up to 20 PARALLEL, asynchronous Projects
	MPE-MX	- Multi-Project-Extension up to an unlimited number of PARALLEL, asynchronous projects. (Depending to memory. <sup>1)</sup> )
NetView:	NV - 2	- MCPS-NetView: MCPS up to 2 simultaneous Logins
	NV - 5	- MCPS-NetView: MCPS up to 5 simultaneous Logins
	NV- 10	- MCPS-NetView: MCPS up to 10 simultaneous Logins
	NV- 20	- MCPS-NetView: MCPS up to 20 simultaneous Logins
	NV- 50	- MCPS-NetView: MCPS up to 50 simultaneous Logins
MCPS-Network support.	NetView with network-dongle and dynamic licence management to visualize ONLINE-data and alarm information from the measurement-PC in the network. Add options MATH 1/2, SMS-E, ERES, SCRIPT, PMON, IR once for the clients if necessary. To display online data and alarm information the <b>MSERV</b> -Option is required on the measurement PC.	

- <sup>1)</sup> A more detailed information about the memory demand per channel or per project is unfortunately not possible because of the enormous number of possible configurations and measurement tasks.
- <sup>2)</sup> For the SMS-dispatch the SMS/E-option must be available. Dialling to the service provider (D1, Vodafone, etc.) is done by analogue modem or ISDN. For the alarming itself ALARM is required. The communication with the SMS - service-centre from the provider is realized using TAP or ERMES UCP protocol.
- <sup>3)</sup> For the dispatch of E-Mails and / or SMS the option SMS/E is required. The E-Mail dispatch is done over a SMTP server, which must be available in the network. For the alarming itself ALARM is required: SMTP-parameters for the dispatch of e-Mails are configurable.

Maximum sample rate	0,01 Seconds (device specific)
Maximum number of devices	200
Used numeral format	Float-numerals according to IEEE 754 with 32 Bit resolution
Maximum number of COM-ports	100
Maximum memory space used	4 GB

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### 3. SYSTEM CONDITION

#### Operating Systems

Supported Microsoft Operating Systems:

Windows 7 (32 Bit or 64 Bit)  
 Windows 2008 (32 Bit or 64 Bit)  
 Windows 2008 R2 (32 Bit or 64 Bit)  
 Windows 8 (32 Bit or 64 Bit)  
 Windows 8.1 (32 Bit or 64 Bit)  
 Windows 2012 (32 Bit or 64 Bit)  
 Windows 10 (32 Bit or 64 Bit)  
 Windows 2016 (32 Bit or 64 Bit)  
 Windows 2019 (64 Bit)  
 Server 2012 / 2016 / 2019

#### General Hardware Conditions

**CPU:** Intel or AMD  $\geq$  2 GHz with Multi-Core-processors **including** mathematical Co-Processor.

**RAM:** Min 2 GByte free RAM.

**Graphical interface:** min. 1280 x 900 pixel Resolution, better more.  
 At least 24 Bit to use all display options.

**Hard Discs:** Capacity depends on number of data channels and sample rate. Fast hard disks which are suitable for the continuous operation are recommended.

**CD- ROM:** Windows Specification

**Mouse:** Windows Specification

**Interfaces:** Parallel port and / or USB.  
 Optional, depending on the input device:  
 RS-232 interface supporting FIFO Buffer,  
 Ethernet TCP/IP,  
 GPIB (National Instruments)

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#### 4. OVERALL VIEW OF SUPPORTED HARDWARE

			Setup-support	Data import / Gap - Filling	Output / Setting / Interface
Advantech	A 4000 Series	A 4011 / 17 / 18			CS
	A 5000 Series	A 5000	1)		
		A 5013 / 17 / 18 / 50 / 51 / 80			
A 6000 Series	A 6017 / 50 / 51				
Agilent		34970 A			CS
		34980 A			
Eurotherm	5000 Series	5100 E / 5100 V / 5180 V			
Gantner		ISM 110			CS
		IDL 100			DO
	e.bloxx	e.bloxx			DO, Relais, CS
IO Tech	Personal DAQ	Personal DAQ /55 / 56	5)		
	PDQ	PDQ1 / PDQ2 Extension module			
Measurement Computing	PCI-DIO	PCI-DIO 24H/48H/96H			DO
	PCI-PDISO	PCI-PDISO 8/16			DO, Relays
	PCI Quad	PCI Quad 04	5)		
Yokogawa	DARWIN	DA 100	1), 6)	F, Int	DO, AO, Relays, S, B
		DC 100	1), 6)	F, Int	AO, S, B
		DR 130 / 231 / 232 / 241 / 242	1), 6)	F, Int	S, B
	MXMW	MX 100	1), 6)	ONL & OFF	DO, AO, S, B
		MW 100	1), 6)	ONL & OFF	DO, AO, S, B
	DX(P)-MV	DX/MV 200	1), 6)	F, Int, Ext, OFF, ONL	S, B
		DX 200 P	1)	F, Int, Ext, OFF, ONL	S, B
		DX / MV 100	1), 6)	F, Int, Ext, OFF, ONL	S, B
		DX 100 P	1)	F, Int, Ext, OFF, ONL	S, B
		DX 1000	1), 6)	F, Int, Ext, OFF, ONL	S, B
		DX 2000	1), 6)	F, Int, Ext, OFF, ONL	S, B
		CX 1000 / 2000	1), 6)	F, Int, Ext, OFF, ONL	
	HR	HR 1300	2) b), 4)	M	CS
		HR 2300 / 2400	2) b), 4)	M	CS
		HR 2500	3)		CS
		DA 2500	3)		CS
	LR-OR	LR 4100	3)	F, M	
		LR 8100	3)	F, M	
		LR 12000	3)	F, M	
		OR 1400	3)	M	
		ORM	3)	M	
		ORP	3)	M	
	µR-VR	µR 1000 / 1800	2) b), 4), 6) *	M	S, B
		VR 100 / 200	2) b), 6)	F	S, B
		µR 10000, µR20000	3)		
	DPM	2531			CS
		WT 110 / 130	2) a)		CS
WT 200 / 210 / 230		2) a)		CS	
WT 1010 / 1030		3)		CS	
WT 1030 M		3)		CS	
WT 2010 / 2030		3)		CS	
WT 1600		1)			

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Yokogawa	DPM	WT 310, WT 330			
		WT 500	2) a)		
		WT 1800	2) a)		
		WT 3000	2a)		
	Controller	GSCtrl			
	Scopes	DL 708/716		F	
	XL	XL 100			
	SmartDAC	GX,GP, GM	2b) 6)	ONL & OFF	DO, AO S, B
ICP		PCI - P8R8			DO, Relays
		PCI - P16R16			DO, Relays
SensoPlan		Senso Torq			
Keithley	Integra Series	KE 2700 / 2701 / 2750	5)	Int	DO, AO
	Supported Slotcards for Integra Series	- 7700 – 7703 - 7705 – 7708 - 7710			Relay switching: 7705 DO, AO :7706
	Morpheus-Series	KE 3706			DO
	Supported Slotcards for Morpheus Series	- 3720 – 3723 - 3730 - 3740			
Siemens	S - Series	S5 using OPC-C-Option			DO, AO
		S7-300			DO, AO
		S7-400			DO, AO
		S7-1200			DO, AO
		S7-1500 (>= 7.0.10.1)			DO, AO
DIAS	PyroLine	PyroLine			
	PyroView	PyroView			
OPTRIS	CT-Series	CT Pyrometer			
SensorTherm	Metis-Series	Metis Pyrometer			
Flir	A-Series	A 20			
		A 40			
		A 320			
		A 325			
	S-Series	SC 640			
RoTronic		HygroLogNT			
		HygroFlex			
Testo		Testo645			
WAGO	750-Series	Field bus devices	750-352 750-880 750-8202 750-312 750-314 750-315 750-341 750-342 750-841 750-842 750-872		DO, AO
		Analog-Inputs	750-456 750-457 750-476 750-479 750-459 750-450 750-451 750-452 750-453 750-454		AI

WAGO	750-Series	Analog-Input	750-455 750-458 750-460 750-461 750-463 750-465 750-466 750-467		AI
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			750-468 750-469 750-470 750-471 750-472 750-473 750-474 750-477 750-478 750-480 750-483 750-485 750-491 750-492		
		Analog-Output	750-550 750-552 750-553 750-554 750-555 750-556 750-557 750-559 750-560 750-501 750-502 750-504 750-509 750-512 750-514 750-515 750-517 750-519 750-523 750-530		AO
		Digital-Input	ALL		DI
		Digital-Output	ALL		DO
		Power clamp	750-493 750-494 750-495		AI
		Frequency clamp	750-404		
		Counter clamp	750-638 750-631 750-637		
		Lufft	OPUS	OPUS20, OPUS200, OPUS300	
	UMB	Devices with UMB protocol	WS10/3000		
Rigol	M300	M300 M301 M302	DMM, 3120, 3132, 3164, 3232, 3264		AI
Greisinger	Easybus	Easylog80, Devices with Easybus			AI
Graphtec	GL-Series	GL100, GL240, GL840	USB, (W)LAN		AI
Driesen+Kern	AsciiStream-Devices	DCXP			
PMS	Particle counter	AirNet, LasAir, IsoAir,...	Modbus		

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**Legend:**

<b>1)</b>	Complete setup support with setup sending, receiving and editing.
	Partial setup support 1 with setup sending, receiving and partly editing.
<b>2)</b>	<b>a.</b> Type of channel and element.
	<b>b.</b> Type of channel, channel range, span, scale and unit.
<b>3)</b>	Partial setup support 2 with setup sending and receiving.
<b>4)</b>	Setup support over card reader.
<b>5)</b>	Definition of device setup in the device driver.
<b>6)</b>	Fixing of special setups to special devices.

<b>F:</b>	Floppy, Data import from floppy disc.
<b>M:</b>	Memory card, data import from memory card.
<b>Int:</b>	Memory download over device interface from its internal device memory.
<b>Ext:</b>	Memory download over device interface from its external device memory.

<b>DO:</b>	Digital output: Setting of digital outputs.
<b>AO:</b>	Analogue output: Setting of analogue outputs.

<b>S:</b>	Set up Hardware – Alarms. In case of activating / changing an alarm in MCPS, MCPS will set up the alarm of the related device automatically.
<b>B:</b>	Confirm Hardware – Alarms. If in MCPS an alarm is acknowledged, automatically the corresponding hardware alarm is acknowledged too.

<b>CS:</b>	Connection about COM – Server (Serial – Ethernet - coupler) is supported.
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<b>ONL:</b>	Online-Gap-Filling. MCPS fetches missing data out of the MX 100 / MW 100FiFo at once the network connection is reestablished, unless there is still necessary data available in the FiFo memory of the MX 100 / MW 100
<b>OFF:</b>	Offline-Gap-Filling. MCPS is able to import data from the CF-card of the MX 100 / MW 100 and put contingently missing data from this imported data into the original project where the data is missing.

\* = Setup fixing is not available for µR10000

\*\* = Only voltage, current, power and energy.

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