

MCPS 9

Multi Channel Process System

Quality-Management-System QMS

Technical specification MCPS 9

(Part QMZD)

The logo for CAD-Computer GmbH & Co. KG, featuring the word "cad" in a bold, lowercase sans-serif font, followed by a stylized blue waveform icon, and then the word "computer" in a regular, lowercase sans-serif font.

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1. DOCUMENT INFORMATION

History of document					
#	Date	Version	Changes	Cause of Change	Author
1	08.09.2026	1.0	All	New edition MCPS 9	GR

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.
Options:	Short description:
PROF	Professional extension, required to run MCPS as a service and to use AD / LDAP
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 ¹⁾) / project
MATH1	- Mathematical basic functions like + - * / ^
	- Statistics (Min-, Max.-values, Mean value, SD, MKT)
	- Mathematical channels
	- Bit test function
	- Program variable SC, SR
MATH2	- 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
MSERV	- Standard functions: SIN(X), COS(X), TAN(X), SQRT(x), EXP(x),...
	- Special functions: ITG, FRAC, MIN, MEAN, MAX, ID
ALARM	- Measurement-PC with MSERV -Option places Online data and alarm information at MCPS-Clients' disposal (For Example: NETVIEW) Establishing of connection up to 25 different measurement PCs with MSERV-option is possible.
	- Remote control from client to start/stop batch or data acquisition, configure a project
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, μ R, VR, DX, Darwin.
	Sending alarms per SMS and/or E-Mail ²⁾ + ³⁾

ERES	- 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.
SCRIPT	- 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..
BATCH	- 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 ERES - option)
PMON	- Process monitor editor for visualization of process relevant data using bitmaps, AVIs, LEDs, analogue meters, digital values, bargraphs and multibitmaps.
IR	- Functionality for visualization of infrared data.
ISO2D	- Field calculation from a 5x5 matrix with ISO-lines
DLL	- Access to a customized DLL
WEB	- Web-Server for displaying measurement data in the Intra- / Internet with Active Server Pages, Scripting,...
BA-IMP	- Offline-Batchmanager. (Automated) Import of device data into the MCPS-Batchmanager.
SQL CLOUD	Data/alarm export to SQL databases (MSSQL, MySQL, MariaDB, PostgreSQL)

DEVICE OPTIONS (Necessary device driver to integrate the corresponding devices in MCPS-projects.)	DA-HR	- Driver for DARWIN, DA/DC100, DR130/231/232/241/242, HR2300/2400/2500, HR 1300, DA 2500, LR 4100/8100/12000, ORM, ORP, OR 1400, VR 100/200, µR 1000/1800, µR 10000, µR20000, PMS-Series, WATCH32
	GL	- Driver for GL100/240/840
	MODBUS	- Universal MODBUS-driver (MODBUS-RTU / MODBUS-TCP)
	MXMW	- Driver for the MX 100 / MW 100
	DX(P)-MV	- Driver for DX/MV 100, DX/MV 200, CX 1000/2000, DX 100P, DX 200P, DX 1000, DX 2000
	OPC-DA	- OPC DA client (classic OPC)
	OPC-UA	- OPCUA client
	DPM	- 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
	MSC	- 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
	ALL	- Universal driver for devices with an ASCII-interface, WITS protocoll
	34970 A	- Driver for Agilent 34970A, 34972A, 34980A, DAQ970A
	KE	- Driver for Keithley Integra Series KE2700, KE2701, KE2750, KE3700, Rigol M300
	A 5000	- Driver for Advantech A 5000, Eurotherm 5000 series
	IRCAM	- Driver for Pyroline / Pyroview, PI-Series
	HLNT	- Driver for HLNT, RMS-LOG-L
	DV2D	- Virtual Driver to display data as 2D-miscolor picture.
	PYM	- Driver for Infrared-Pyrometer (Metis-Series, CT-Series, Pyrospot,...)
	XL	- Driver for XL 100
	UMB	- Driver for devices with UMB protocol: WS10, WS3000
	Easybus	- Driver for Greisinger Easybus devices like EasyLog80
	W750	- Driver for WAGO Series 750
	OPUS	- Driver for Lufft OPUS20/300 series
	SmartDac	- Driver for GX10, GX20, GP10, GP20, GM10
	S7	- Driver for Siemens SPS S7-300, S7-400, S7-1200, S7-1500
	XDL	- Driver for XDL400/500

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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 an unlimited number of PARALLEL, asynchronous projects. (Depending to memory. ¹⁾)
NetView: MCPS-Network support.	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
	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 MSERV -Option is required on the measurement PC.	

- ¹⁾ 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.
- ²⁾ For the SMS-dispatch the SMS/E-option must be available and a GSM router. For the alarming itself ALARM is required.
- ³⁾ 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	500
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
License model	a) Dongle (Wibu/Codimeter) b) Software key (Activation code)

3. SYSTEM CONDITION

Operating Systems

Supported Microsoft Operating Systems:

Windows 10 (32 Bit or 64 Bit)
Windows 11
Windows Server 2019
Windows Server 2022

General Hardware Conditions

CPU: Intel or AMD ≥ 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.
Free 50 GB recommended

USB stick: Windows Specification

Mouse: Windows Specification

Interfaces: 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)		

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			
ICP	SmartDAC	GX,GP, GM	2b) 6)	ONL & OFF	DO, AO S, B
		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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			750-468 750-469 750-470 750-471 750-472 750-473 750-474 750-477 750-478 750-480 750-483 750-485 750-491 750-492 750-498		
		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	AI
			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		
CAD	XDL-Series			Int	

Legend:

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

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

DO:	Digital output: Setting of digital outputs.
AO:	Analogue output: Setting of analogue outputs.

S:	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:	Confirm Hardware – Alarms. If in MCPS an alarm is acknowledged, automatically the corresponding hardware alarm is acknowledged too.

CS:	Connection about COM – Server (Serial – Ethernet - coupler) is supported.
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ONL:	Online-Gap-Filling. MCPS fetches missing data out of the MX 100 / MW 100 FiFo at once the network connection is reestablished, unless there is still necessary data available in the FiFo memory of the MX 100 / MW 100
OFF:	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.