ALMEMO® 5690-1CPU

Technical data and functions

- Technical data and functions, as for ALMEMO® 5690 series
- CPU board with measuring circuit (without measuring inputs) and output sockets
- Up to 100 measuring inputs / 100 measuring channels via selector switch boards
- Option XU - up to 190 measuring inputs / 250 measuring channels via selector switch boards
- Option XM - high-speed measuring operations, up to 190 measuring inputs / 250 measuring channels via active measuring circuit boards. The measuring circuit boards operate in parallel, thus ensuring short scanning times for a large number of channels. The scanning time is determined by the measuring circuit board with the highest number of active measuring channels - or, at conversion rate 50 Hz, also by the processing time of the CPU.
- Option - 5 ALMEMO® output sockets for digital interfaces, analog outputs, trigger, alarm contacts, socket P0 for integrated relay outputs
- Data logger with internal RAM (standard) or FeRAM (option) or external ALMEMO® memory connector with micro SD card

Technical data

Technical data, as for ALMEMO® 5690 series	
CPU board	Measuring circuit (without measuring inputs), input boards
Measuring inputs / measuring channels	
Standard	up to 100 inputs / 100 meas. channels via selector switch boards
Option XU	up to 190 inputs / 250 meas. channels via selector switch boards
Option XM	up to 190 inputs / 250 meas. channels via active measuring circuit boards
Memory, internal	sufficient for 400,000 values, linear or ring memory
Standard	RAM (buffered by battery)
Option SF	FeRAM (non-volatile)
External memory (accessory)	ALMEMO® memory connector with micro SD card
Outputs	5 ALMEMO® sockets, suitable for all output modules (analog / data / trigger / relay cables, etc.). Alarm signal transmitter, internal Socket P0 for integrated relay outputs (option) Or trigger and analog output (by request)
Operation	1 key, 5 LEDs, 2 coding switches

Accessories	Order no.
Memory connector with micro SD, including USB card reader (see chapter „General accessories“)	**ZA1904SD**

Input boards / expansions	Order no.
Relay / trigger / analog board, 2 slots per system up to 4 boards are supported. (see chapter „Output modules“)	**ES5690RTA5**
Other boards see option XM - selector switch boards and active measuring circuit boards	

Options	Order no.
Up to 190 measuring inputs / 250 measuring channels	**OA5690XU**
For active measuring circuit boards, up to 190 measuring inputs / 250 measuring channels	**OA5690XM**
Data memory, internal FeRAM, non-volatile (instead of battery-buffered RAM)	**OA5690SF**
Multi-point adjustment, special linearization, management of calibration data	**OA5690KL**
Temperature ranges for 8 refrigerants	**SB0000R2**
Measuring rate for 1 measuring channel, 500 mops (SD card required). This cannot be combined with option XM.	**SA0000Q5**
For output socket P0	
SH2 2 semiconductor relays (normally open) internal, 0.5 A, 50 V	**OA5690SH2**
OH2 2 additional relays (normally closed) for option SH2 (thus 2 changeover relays)	**OA5690OH2**

Standard delivery

Precision measuring instrument, data acquisition system with CPU board
Measuring circuit (without measuring inputs) Input boards must be ordered separately.
Mains plug assembly ZB1212NA11, Operating instructions, manufacturer‘s test certificate

DAkkS accredited calibration or works calibration KE90xx, electrical, for measuring instrument, see chapter „Calibration certificates“.
DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

11/2025 • We reserve the right to make technical changes.

ALMEMO® 5690-1CPUTG1



Dimensions:
77 x 145 x 218 mm
(WxHxD)

Data acquisition system in desktop housing TG1
CPU board, 1 free slot **MA56901CPUTG1**
Measuring inputs via 1 MU board (10 inputs)

ALMEMO® 5690-1CPUTG3



Dimensions:
179 x 158 x 232 mm
(WxHxD)

Data acquisition system in desktop housing TG3
CPU board, 6 free slots **MA56901CPUTG3**
Measuring inputs
via three A10 or TH2 boards (30 inputs)
or 6 MU boards (60 inputs)
or three RTA5 output boards

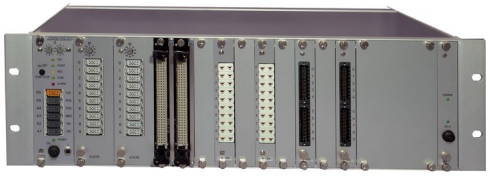
ALMEMO® 5690-1CPUTG8



Dimensions:
444 x 158
x 232 mm
(WxHxD)

Data acquisition system in desktop housing TG8
CPU board, 19 free slots **MA56901CPUTG8**
Measuring inputs
via nine A10 or TH2 boards (90 inputs)
or 19 MU boards (190 inputs)
or four RTA5 output boards

ALMEMO® 5690-1CPUBT8



Dimensions:
483 x 132
x 273 mm
(WxHxD)

Data acquisition system in 19-inch rack housing
CPU board, 19 free slots **MA56901CPUBT8**
Measuring inputs
via nine A10 or TH2 boards (90 inputs)
or 19 MU boards (190 inputs)
or four RTA5 output boards



Carry case, aluminum profile frame ZB5600TK3
for ALMEMO® 5690-1/ -2



Rack case with handle ZB5090RC
for ALMEMO® 5690-xxBT8 in 19-inch rack housing

ALMEMO® 5690-2CPU

Technical data and functions

- Technical data and functions, as for ALMEMO® 5690 series
- CPU board with measuring circuit (without measuring inputs) and output sockets
- Up to 100 measuring inputs / 100 measuring channels via selector switch boards
- Option XU - up to 190 measuring inputs / 250 measuring channels via selector switch boards
- Option XM - high-speed measuring operations, up to 190 measuring inputs / 250 measuring channels via active measuring circuit boards The measuring circuit boards operate in parallel, thus ensuring short scanning times for a large number of channels. The scanning time is determined by the measuring circuit board with the highest number of active measuring channels - or, at conversion rate 50 Hz, also by the processing time of the CPU.
- Option - 5 ALMEMO® output sockets for digital interfaces, analog outputs, trigger, alarm contacts, socket P0 for integrated relay outputs
- Generously dimensioned graphics display, bright illumination, large display of measured values
- Measured values can be displayed graphically in line chart or bar chart form or numerically in various sizes.
- 3 user-defined menus can be freely configured from a range of 50 functions.
- Easy to operate by means of 4 soft-keys and cursor block, menu-guided with wizards and context-sensitive help windows
- Choice of languages: German, English, French
- Data logger with internal RAM (standard) or FeRAM (option) and with micro SD card (standard).

Technical data

Technical data, as for ALMEMO® 5690 series	
CPU board	Measuring circuit (without meas. inputs) Input boards
Measuring inputs / measuring channels	
Standard	up to 100 inputs / 100 measuring channels via selector switch boards
Option XU	up to 190 inputs / 250 measuring channels via selector switch boards
Option XM	up to 190 inputs / 250 measuring channels via active measuring circuit boards
Memory, internal	sufficient for 400,000 values, linear or ring memory
Standard	RAM (buffered by battery)
Option SF	FeRAM (non-volatile)

Memory	Micro SD card, integrated drive
Outputs	5 ALMEMO® sockets, suitable for all output modules (analog / data / trigger / relay cables, etc.) Alarm signal transmitter, internal Socket P0 for integrated relay outputs (option) Or trigger and analog output (by request)
Display	
Graphics display	128 x 128 pixels, 16 rows
Illumination	5 white LEDs, 3 brightness levels
Operation	9 keys (4 soft-keys and cursor block) 9 status LEDs on front panel

Input boards / expansions

	Order no.
Relay / trigger / analog board, 2 slots per system up to 4 boards are supported (see chapter „Output modules“). Other boards see option XM - selector switch boards and active measuring circuit boards	**ES5690RTA5**

Options

	Order no.
Up to 190 measuring inputs / 250 measuring channels	**OA5690XU**
For active measuring circuit boards, up to 190 measuring inputs / 250 measuring channels	**OA5690XM**
Data memory, internal FeRAM, non-volatile (instead of battery-buffered RAM)	**OA5690SF**
Multi-point adjustment, special linearization, management of calibration data	**OA5690KL**
Temperature ranges for 8 refrigerants	**SB0000R2**
Measuring rate for 1 measuring channel, 500 mops (SD card required). This cannot be combined with option XM.	**SA0000Q5**
For output socket P0	
SH2 2 semiconductor relays (normally open) internal, 0.5 A, 50 V	**OA5690SH2**
OH2 2 additional relays (normally closed) for option SH2 (thus 2 changeover relays)	**OA5690OH2**

Standard delivery

Precision measuring instrument, data acquisition system with graphics display and operating controls, CPU board, Measuring circuit (without measuring inputs), Input boards must be ordered separately, Micro SD card, USB card reader, mains plug assembly ZB1212NA11, Operating instructions, manufacturer‘s test certificate.

DAkkS accredited calibration or works calibration KE90xx, electrical, for measuring instrument, see chapter „Calibration certificates“.
DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

11/2025 • We reserve the right to make technical changes.

ALMEMO® 5690-2CPUTG3



Dimensions:
179 x 158 x 232 mm
(WxHxD)

Data acquisition system in desktop housing TG3
CPU board, 6 free slots **MA56902CPUTG3**
Measuring inputs
via three A10 or TH2 boards (30 inputs)
or 6 MU boards (60 inputs)
or three RTA5 output boards

ALMEMO® 5690-2CPUWG3



Dimensions:
209 x 207 x 153 mm (WxHxD)
(width includes fastening strips)

Data acquisition system in wall-mounted housing WG3
CPU board, 6 free slots **MA56902CPUWG3**
Measuring inputs
via three A10 or TH2 boards (30 inputs)
or 6 MU boards (60 inputs)
or three RTA5 output boards
The boards have their connections facing downwards. To facilitate wall-mounting four holes (5.3 mm) are provided on the protruding strips to the left and right of the housing's backplate (which cannot itself be removed).

ALMEMO® 5690-2CPUTG8



Dimensions:
444 x 158
x 232 mm
(WxHxD)

Data acquisition system in desktop housing TG8
CPU board, 19 free slots **MA56902CPUTG8**
Measuring inputs
via nine A10 or TH2 boards (90 inputs)
or 19 MU boards (190 inputs)
or four RTA5 output boards

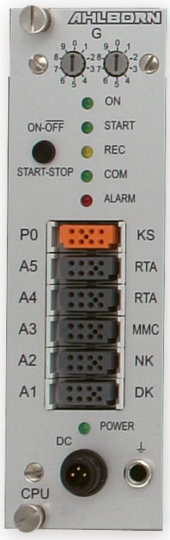
ALMEMO® 5690-2CPUBT8



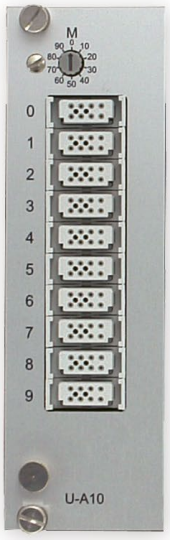
Dimensions:
483 x 132
x 273 mm
(WxHxD)

Data acquisition system in 19-inch rack housing
CPU board, 19 free slots **MA56902CPUBT8**
Measuring inputs
via nine A10 or TH2 boards (90 inputs)
or 19 MU boards (190 inputs)
or four RTA5 output boards

CPU board, selector switch boards, active measuring circuit boards and expansions for CPU systems ALMEMO® 5690-1CPU and 5690-2CPU



CPU



U-A10
M-A10



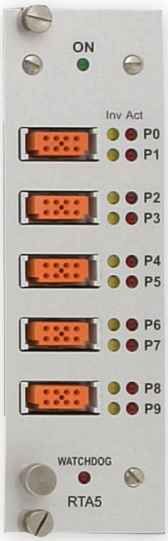
U-MU
M-MU



U-TH2
M-TH2



AP



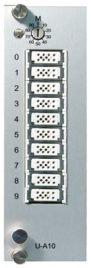
RTA5

Input boards for ALMEMO® 5690-1CPU and 5690-2CPU

Technical data and functions

- Selector switch boards U-xx for CPU systems without options XU / XM or with option XU
- Active measuring circuit boards M-xx with own A/D converter for CPU systems with option XM
- There are several design variants for different installations / input plugs.

Input board U-A10 / M-A10



10 inputs for ALMEMO® single connectors.
For flexible applications with individual sensors and measuring signals.

Technical data

Measuring inputs	10 ALMEMO® input sockets, electrically isolated
Measuring ranges	All ranges (see general technical specifications)
Sensor supply	12 V, maximum 0.3 A (per system max. 1.5 A)
Footprint	2 slots

Standard delivery	Order no.
Selector switch board U-A10	**ES5690UA10**
Active measuring circuit board M-A10 (for CPU system with option XM)	**ES5690MA10**

Input board U-MU



10 inputs for ALMEMO® 10 MU connectors.
For permanently installing groups of 10, especially temperature sensors.

Technical data

Measuring inputs	10 inputs, electrically isolated, socket strip for ALMEMO® 10-way MU connector
Measuring ranges	all thermocouples, Pt100, Ni100, NTC ohms, 2.6 V, 260 mV, 55 mV, 26 mV
Sensor supply	None
Footprint	1 slot

Standard delivery	Order no.
Selector switch board U-MU	**ES5690UMU**
Active measuring circuit board M-MU (for CPU system with option XM)	**ES5690MMU**
ALMEMO® 10-way MU connector	**ZA5690MU**

11/2025 • We reserve the right to make technical changes.

Input board U-TH2



10 inputs for miniature thermal connectors.
For any individual thermocouple temperature sensors with miniature thermal connector.

Technical data

Measuring inputs	10 miniature thermal sockets, electr. isolated ALMEMO® sensor parameters are saved in the measuring instrument.
Measuring ranges	all thermocouples
Sensor supply	None
Footprint	2 slots

Standard delivery	**Order no.**
Selector switch board U-TH2	**ES5690UTH2**
Active measuring circuit board M-TH2 (for CPU system with option XM)	**ES5690MTH2**

Miniature thermal connectors must be ordered separately