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maXYmos BL

Type 5867B...

XY monitor for good/bad evaluation of curves

The maXYmos BL monitors and evaluates XY curves of two measurands that have to stand in a certain relation to each other. Such curves arise in applications such as

- Press fitting ball bearings
- Pivoting and adjusting rake of backrests
- Riveting and calking casing parts
- Tactile manipulation of rotary switches, etc.

In the case of press fitting, for example the typical measurement curves are recorded using force and displacement sensors, or torque and rotational angle sensors for swiveling or rotation. The maXYmos BL can be used to record, monitor and display the interrelation of basically any measurands that can be measured with piezoelectric, strain gage and potentiometric sensors or with ±10 V-signal output sensors.
The quality of an individual manufacturing step, an assembly or the entire product can be determined on the basis of such measurement curves. The earlier in the production chain such monitoring is started, the more certain the finished product will subsequently pass final inspection. It is then also possible to divert and rework the part at an early stage, rather than scrapping it anyway after a whole series of further manufacturing operations.

Description
The functional modern case design, clear menus and practical functions add up to an impressive monitor. The high-contrast color touch screen display allows smooth operation of the maXYmos BL and shows the process information clearly.
This is achieved through a particularly sophisticated menu concept that is context sensitive only showing what is actually needed for the particular function. The maXYmos BL provides functions that allow many standard XY monitoring tasks to be solved. All serial interfaces and digital In/Out are always fitted.

- Measurement function Y(X), Y(t), Y(X,t) oder X(t)
- Evaluation objects: UNI-BOX, LINE-X, LINE-Y, ENVELOPE, NO-PASS (Online threshold)*
- 4 evaluation objects per curve**
- 16 measurement programs for 16 different types of parts
- Up to 8 000 pairs of XY-values per curve
- Short evaluation time: up to 10 parts/second
- Ethernet TCP/IP for measurement data and remote maintenance
- PROFIBUS DP, EtherNet/IP, EtherCAT, PROFINET, CC-Link or Modbus for process values and control*
- Dig. IO (24 V) for control and results***
- 2 switching signals in real time for X- and Y-threshold*
- USB for notebook (PC program: maXYmos PC)
- Sensor for channel X: potentiometer and ±10 V
- Sensor for channel Y: piezo or strain gage and ±10 V
- Front panel, desktop- or wall-mounting, or Top-hat rail mounting without display
- Information pages for NOK cause diagnosis
- Internal SN generator with selectable format
- Freely allocatable warning messages and alarms
- Access protection for different user groups
- 3.5" color touch screen display
- 24 VDC power supply
- Sequencer mode (optional)
- 6 EOs – additional 2 evaluation objects (optional)

* Functionality changes with maXYmos BL sequencer mode
** Functionality changes with maXYmos BL License "6 EOs"
*** Functionality changes with maXYmos BL 5867B1003ND

Visit www.kistler.com/maxymos for more information

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Technical data

Measuring channels

Number		2
Max. X/Y sampling rate	S/s	5 000
Resolution on each channel	bit	24
Accuracy class	%	0,3
Low-pass filter for each channel	Hz	in steps 0,1 ... 500
Channel X		
Sensor type 1		potentiometer
Track resistance	kΩ	1 ... 5
Supply voltage	V	4 (4,16)
Connection system	3-wire	
Wiper current	uA	<0,1
Sensor type 2	V	process signal ±10
Supply voltage	V	24
Channel Y		
Sensor type 1		piezoelectric
Measuring range	pC	±100 ... ±700 000
At 4 pC/N corresponds to	kN	0 ... ±175
Drift	pC/s	0,05
Sensor type 2		strain gage
Measuring range	mV/V	0 ... ±6
Supply voltage	V	5
Connection system		4-wire/6-wire
Bridge resistance	Ω	100 ... 1 000
Sensor type 3	V	process signal ±10
Supply voltage	V	24

Cycle control***

START – STOP	Dig.-In / X-threshold / Y-threshold

Measuring functions

Measurement curve based on	Y(X), Y(t), Y(X,t), X(t)

Curve memory

Current curve	pairs of XY-values max. 8 000
Historical curves (for NOK diagnosis)	at least the last 320 cycles

Evaluation Objects (EOs)

EO-Types	UNI-BOX/LINE-X/LINE-Y ENVELOPE/NO-PASS
Reference points in X-channel	absolute, block or trigger-Y
Editing	numerical entry, drawing with stylus

Data export

Format	csv
Destination	Server
Transmission via	USB/Ethernet

Serial interfaces

Ethernet	1 x TCP/IP 100 Base-TX
USB	1 x USB Device 1.1
BUS*	PROFIBUS DP, 12 MBaud, EtherNet/IP, EtherCAT, PROFINET, CC-Link or Modbus

Dig-In/Out***

Standard		DIN EN61131
Level of "0" state	V	0 ... 5
Level of "1" state	V	15 ... 30
Number of inputs		11
Input current, max.	mA	8 (at 24 V)
Number of outputs		8
Output current, max.	mA	100 (at 24 V)

Measurement programs

Number		16
Switching by means of		Menu/Dig.-In/BUS

Switching signals*

Number	2 (S1 and S2)
Channel allocation	X or Y (selectable)
Switching point	when X-threshold reached when Y-threshold reached
Output	Dig.-Out or PLC
Mode	continuous or latch
Effect on evaluation	no

Real-time responses

S1/S2 switching signals	ms	<1, (<5)*
EO-Type "NO-PASS"	ms	<1, (<5)*

Power supply

Voltage	VDC	24 (18 ... 30)
Power consumption	VA	5

Connection terminal screws, 1 piece in scope of delivery
Wago, Ord. no. 734-103/037-000, Housing: Ord. no. 734-603

Environmental

Operating temperature range	°C	0 ... 50
Storage temperature range	°C	0 ... 50
Degree of protection front/Connection side		IP65/IP40

General data

Front panel version		
Weight	g	700
Desktop/wall version		
Weight	g	840
Dimensions		see drawing

* Functionality changes with maXYmos BL sequencer mode
*** Functionality changes with maXYmos BL 5867B1003ND

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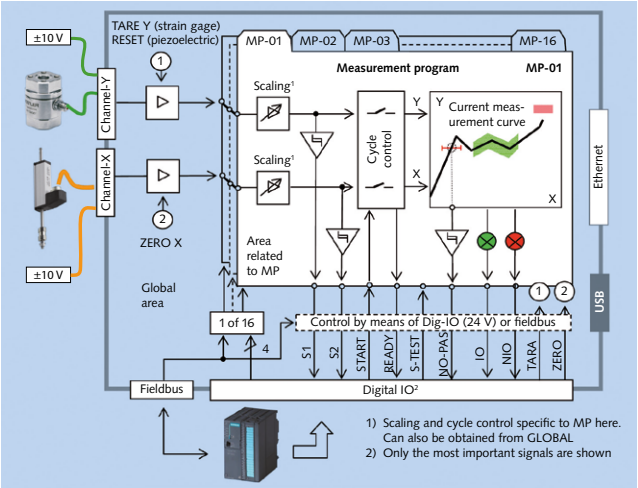
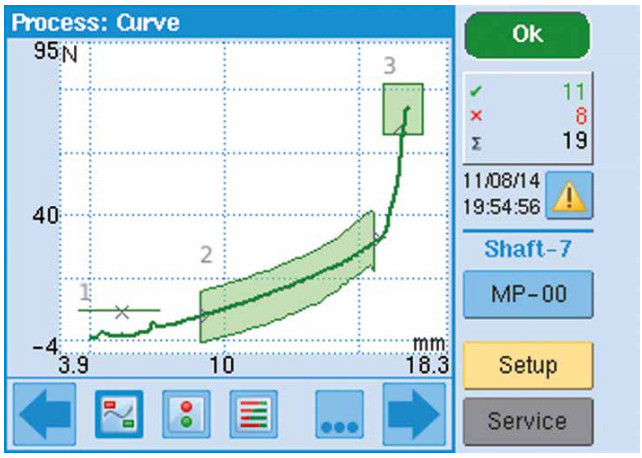
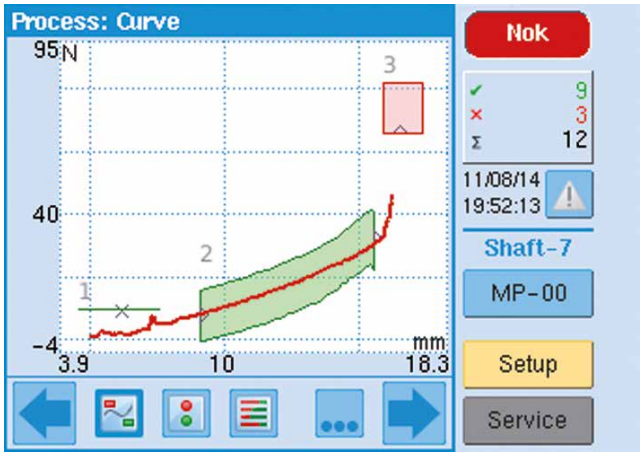
Functional principle



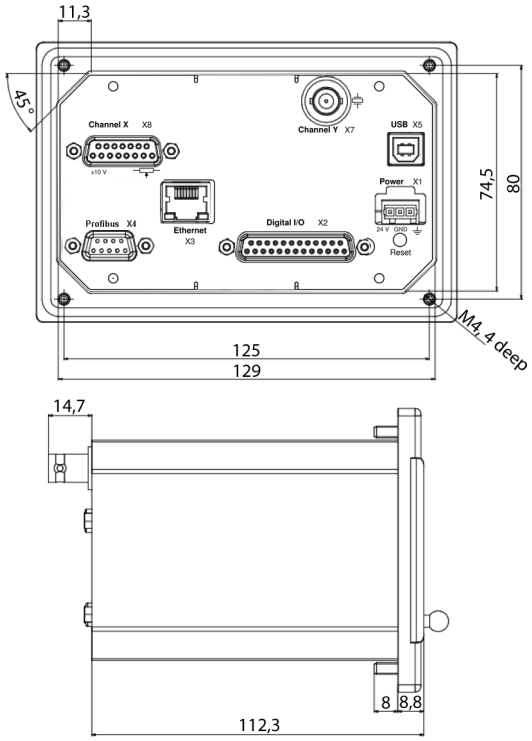
The measurement curve of a process is recorded, written to the MAC (Memory Actual Curve) and then evaluated. In the process the maXYmos checks whether the curve passes through the evaluation object (EOs), for example envelope curve or box, as prescribed. If it does, an OK (and otherwise a NOK) is generated.



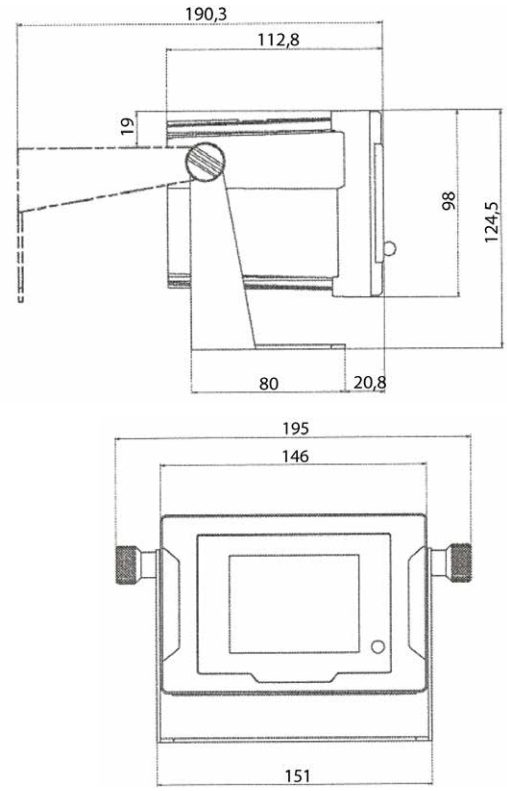


Dimensions

Front panel version e.g. Type 5867B0000



Desktop/wall version Type 5867BXX1X



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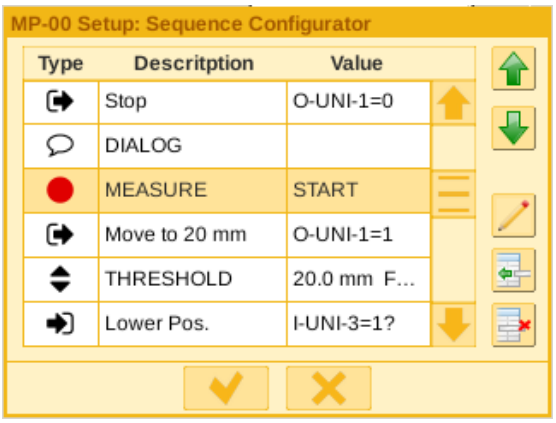
maXYmos BL 2.2 sequencer mode
(Option through licensed software upgrade Type 2832A1)



Important features of the maXYmos BL sequencer mode:
- 11 freely programmable digital inputs***
- 8 freely programmable digital outputs***
- up to 128 elements for measurement program
- "Cam function" for the X and Y axis
- 16 measurement programs
- 20 variables

The Sequencer Mode in the maXYmos BL allows programming of sequence controls, which are used to control the process. An independent program can be created for every measurement program, using the freely programmable digital input and outputs to poll or output special, process-relevant conditions, for example. The following elements are available:

Element bitmask, this element enables the joint set/reset of the 8 digital outputs.

Element counter, this element is used for counting (+ or –) events. The value is saved in the UVT.

Measurement start/stop element, this element starts and stops the measurement. When the measurement stops, the evaluation is performed according to the parameterized evaluation elements.

Timer element, this element delays execution of the subsequent element by the configured time. Use as a dwell time under force, for example.

If/Else element, this element permits a conditional branch, i.e. a branch in the sequential program according to the query condition or result.

Universal variables table, Query results of the sequence (for example, from the SE dialog, If/Else etc., or values, such as the SE Counter) can be stored in the UVT and can be used as input variables for further steps in the sequence.

Restart element, branching option to the start of the sequence.

Element reset/operate, this element is used for the variable measurement Start/Stop of the integr. charging amplifier in the sequence.

Switching threshold element, this element serves to record the learned positions on the X and Y axes. These positions act as a progressive switching or query condition in the sequence.

Output element, when this element is activated, the corresponding configured output is set on the device.

Input element, when this element is activated, the system waits for the configured digital input signal and then continues the sequence.

Element dialog, this object is used for interaction with the user. This can be used, for example, to transmit useful information to the user. The dialog must be acknowledged by the user on the visualization or it automatically fades out after a defined period of time.

*** Functionality changes with maXYmos BL 5867B1003ND

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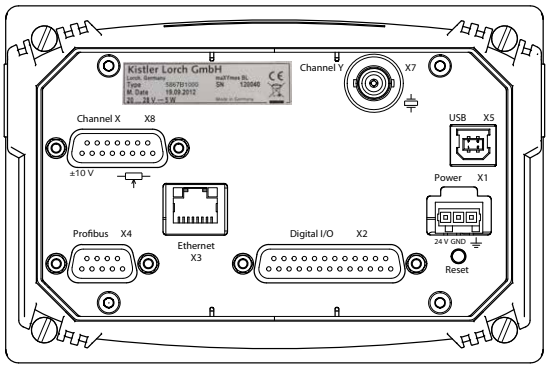
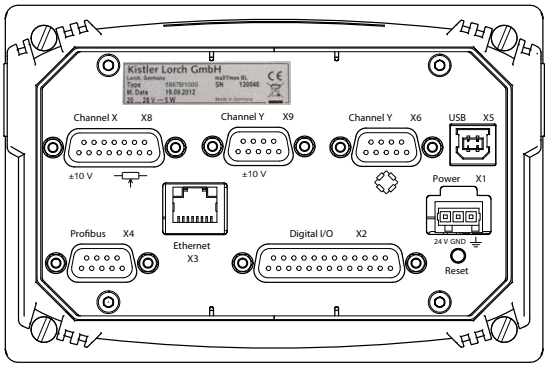
Connections



Back panel piezoelectric PROFIBUS version



Back panel strain gage PROFIBUS version

Ordering key for

XY-Monitor maXYmos BL Type 5867B ☐ 0 ☐ ☐ ☐

Channel Y

Piezo	**0***
Strain gage and ±10 V	**1**

Channel X

Potentiometer and ±10 V	**0**

Housing

Front panel mounting	**0**
Desk/wall mounting	**1***

BUS

PROFIBUS DP	**0***
EtherNet/IP, EtherCAT, PROFINET	**1**
CC-Link	**2***
Modbus	**3**

Top-hat rail mounting without display	**ND**

* only on request with Option "ND"

maXYmos BL sequencer mode **2832A1**
- Software expansion (license needed)
- Connection control through programmable sequence
- Programmable DI/Do (1/8)

maXYmos BL – "6 EOs" license **2832A2**
- Software expansion (license needed)
- 4 evaluation objects (standard) plus 2 additional evaluation objects

Windows-Software maXYmos PC (Basic) **2830A1**
- Organize firmware update
- Backup of device settings as file (backup)
- Restore of device settings in unit (restore)
- Access, check and edit of backup files

(included in delivery)

Windows-Software maXYmos PC (Plus) **2830A2**

Like Basic version, though accessory
- All settings can be established through the PC (setup editor)
- Protocol explorer accesses and interprets exported measuring protocols
- Measuring of cursors, display of bundled curves, etc.
- Completed Y(X)-curves can be displayed as Y(t) or X(t)
- Generating of an Excel statistic with selected process values
- PDF-printer for measuring protocols

Accessories

	Type
• Desktop/wall case for converting a front panel version into a desktop/ wall version, compl. with mounting kit	5867AZ000

• Power supply 90 - 264 VAC / 24 VDC 50-60 Hz, max. 90 W (3.75A), ready tobe connected, cable for each country is configurable	5781B5
• Set of connectors, strain gage version, compl. for sensors, dig. IO and supply (1 set in included accessories)	5867AZ010
• Connector set, piezoelectric version for sensors dig. IO and supply (1 set in included accessories)	5867AZ011
• Adapter cable to connect through of potentiometric displacement sensor or angle sensor to several maXYmos	1200A156AX (X = count of units; max. 10 units)

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