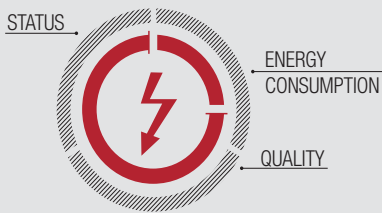
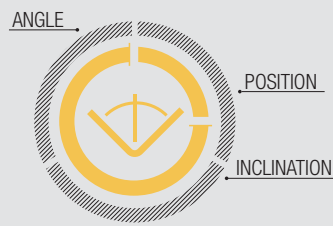


CORE PRODUCT RANGE

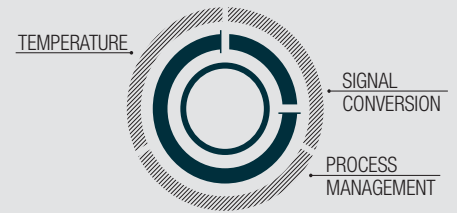
HEAVY CURRENT ENGINEERING



ANGULAR POSITION ENGINEERING



PROCESS CONTROL ENGINEERING



THE IMPRESSIVE SPECTRUM OF INTELLIGENT INSTRUMENTATION.

WHO WE ARE.

Camille Bauer Metrawatt AG has long years of experience in the development of instruments which must operate precisely in all external conditions:

Our instrumentation products are designed for maximum efficiency: They help to optimise products and processes and provide a reliable, highly precise data basis for all important measured variables in any situation. Their solid quality guarantees a long serviceable life and functional safety also under demanding external conditions. In this way, they contribute to the permanent reduction of the consumption of resources – thus making the solutions of our customers fit for the future.

And: Our responsibility in relation to customers does not end upon the conclusion of a sale.

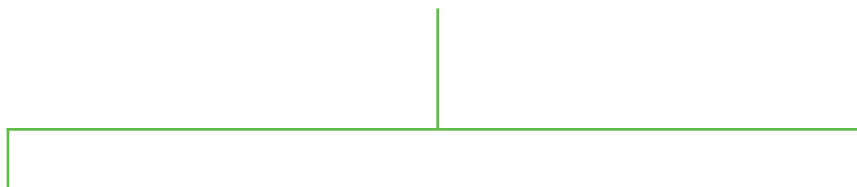
Following our company motto, „Rely on us“, we always guarantee you the support and advice from our staff. In a personal conversation, we keep our customers up to date about new features and changes.

Camille Bauer, based in Switzerland, forms part of the GMC-Instruments Group.

Also Gossen Metrawatt, located in Nurnberg, is part of GMC-Instruments.



GMC INSTRUMENTS



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**SWISS TOP QUALITY –
INDEPENDENTLY APPROVED**

Camille Bauer Metrawatt AG has long years of experience in the development of instruments which must operate precisely in all external conditions: Our products feature maximum safety for the operating staff and standardaligned functioning under different site and ambient conditions. Highly precise EMC and environmental tests can be conducted at our own test laboratories. In addition, we have the safety and quality of our instruments again and again documented by external accredited test laboratories as well as independent international certification bodies:



CERTIFICATIONS*

- UL
- CSA
- GL
- Ex
- CB-Scheme (IECEE compliance test)

CONFORMITY APPROVALS**

- Profibus
- IEC61850
- HART

SPECIAL APPROVALS

- Seismic resistance
- Nuclear approval

* Safety, EMC, environment ** Communication

CLEAN TECH FROM CAMILLE BAUER METRAWATT AG:

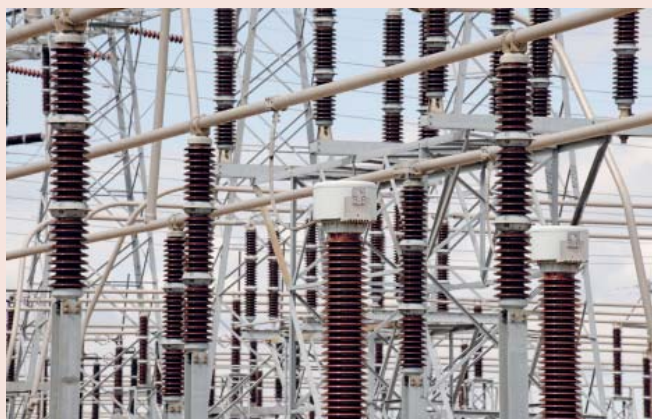
SUSTAINABILITY WITH A SYSTEM

- Resource-optimised raw material management
- Environmentally-friendly production processes with effective emission protection and manufacturing steps neutral for climate
- Permanent further development of products and services under efficiency aspects
- Meticulous quality and environment compatibility tests
- Member of Cleantech Industry Association Switzerland
- Certified according to ISO 14001



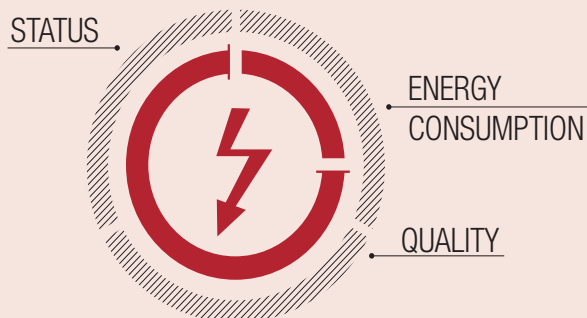
HEAVY CURRENT ENGINEERING

Swiss precision for optimum energy management. Internationally in use.



The deregulation of energy markets and the globally increasing environmental awareness define a high degree of responsibility for companies to treat current as a precious raw material and to safeguard the non-dissipative management of this resource. And that without any gaps: from its generation and transport through to the supply and consumption in companies and households. For these new and, above all, varied challenges, Camille Bauer provides a wide spectrum of innovative and highly efficient products.

MEASURING TASKS IN HEAVY CURRENT ENGINEERING



STATUS

Grid management and equipment monitoring require reliable information on the current status of selected network variables. This can be achieved by unifunctional transducers or, in more extensive tasks, by programmable multifunctional devices.

QUALITY

The power supply quality is continually deteriorating due to the use of state-of-the-art, often computer-controlled technologies. Therefore, it is imperative to monitor and, if required, correct the available mains supply in order to ensure the smooth operation of infrastructure and equipment.

ENERGIE CONSUMPTION

The basis of any energy optimisation is constituted by the acquisition, analysis and control of consumption data and its source-related allocation. To comply with this task, we provide meters, load profile loggers, data collectors, peak load optimisers and software for the entire energy management.



Multifunctional devices

Multifunctional measurement devices are programmable and can be used for the measurement of almost every quantity of an electrical power system. They differ in application as well as in performance and communication capability.

The **SINEAX AM2000** is a compact instrument for measurement and monitoring of power systems. It stands out by the display quality and intuitive operation.

The device provides a wide functionality, which can be extended further by means of optional components.



SINEAX AM2000

- Direct measurement up to 690 V, CATIII
- Condition monitoring
- Energy consumption analysis (meters, load curves, trend analysis)
- Harmonic analysis acc. IEC 61000-4-7
- System imbalance monitoring
- Limit monitoring with alarming
- Universal process I/O
- Graphical measurement displays
- High resolution color TFT display

The **APLUS** is designed for applications in power distribution, in strongly distorted industrial environments and in building automation. This powerful platform for the measuring, monitoring and analyzing of power systems is the ideal device for demanding measurement tasks, where fast, accurate and insensitive analysis of power systems and loads is required.



APLUS

- Acquisition and monitoring of system state quantities
- Universal process-I/O
- Open communication via Modbus, Ethernet or Profibus DP
- Long-term data storage with event recording
- Extended energy consumption monitoring
- Analysis of power quality aspects
- Monitoring means of production



You may select optionally either a TFT or LED display for on-site data visualization. The TFT color display mainly focuses on modern design, graphical analysis and language specific operation, whilst the LED display offers excellent readability, even from a distance and almost every angle. Both displays are operated via keys suited for industrial applications.

The **SINEAX DM5S** and **SINEAX DM5F** are classical high-accuracy transducers, suited for monitoring tasks and retrofit applications in energy distribution and industry. They provide either analog outputs and / or Modbus communication.



SINEAX DM5S / SINEAX DM5F

- System state monitoring: class 0.2
- All-purpose: V/I, P/Q/S, f, PF etc.
- Remote communication via Modbus
- DM5S: Energy metering class 0.5S
- DM5F: Response time 15...25ms
- Configuration without power supply

The **SINEAX CAM** is an universal, high-precision measurement system, which can be optimally adapted to the measurement task by means of the parameterization. Much emphasis was placed on the communication capabilities. So the device can be easily connected to a control system via analog and digital I/Os as well as standardized interfaces.



SINEAX CAM

- Suited for monitoring strongly-distorted power systems
- Ideal for different test laboratory applications
- Communication via Modbus/TCP or IEC61850 as an option
- Free assembly of I/O interface
- Optional internal or external display in 7 languages
- Version with Rogowski current inputs available
- Also available for mobile application



SINEAX A210 / A220 / A230s / A230

- Provide all relevant state quantities of a grid
- Large LED display with excellent legibility
- A230 / A230s provide additional functionality: higher accuracy, imbalance / harmonic / trend analysis and user-specific displays
- Extendable with communication and I/O module
- 2 digit limit or pulse outputs



EMMOD20x extension modules

- Snap-on modules for A210 / A220 / A230s / A230
- Choose from 7 different modules
- Modules provide communication (Modbus, Ethernet, Profibus DP, LON, M-Bus), data logging and additional I/Os

Unifunctional devices

These mostly analog based devices are produced as requested by the customer. They convert a heavy-current quantity into a proportional analog DC output signal. Therefore they are suited to a specific measurement task.

Alternating current transducers are available in different qualities. If the input current is almost sinusoidal a more cost-effective device can be used than for distorted currents, where the measurement of the RMS value is more complex.



Features	I542	I538	I552
Measurement of distorted alternating currents			√
RMS value measurement			√
2 measuring ranges	√		√
Adjustable maximum value of the measuring range	O	O	S
Without power supply	√		

O = optional S = standard

Alternating voltage transducers are also divided in different application categories. Here as well sinusoidal and distorted input signals are distinguished.



Features	U543	U539	U553	U554
Measurement of distorted alternating voltages			√	√
RMS value measurement (standard)			√	√
Adjustable maximum value of the measuring range (option)	√	√	√	
Different characteristics (primary value scale, step)				√
Without power supply (standard)	√			
2-wire technology with 4 ...20 mA output (option)		√		

Transducers for frequency, phase angle or their differences.



SINEAX F534 / SINEAX F535 / SINEAX G536 / SINEAX G537

- Frequency (SINEAX F534), frequency difference (SINEAX F535)
- Phase angle (SINEAX G536), phase angle difference (SINEAX G537)
- Determining the system frequency stability
- Monitoring of the reactive power requirement
- Determination of characteristic value for reactive power compensation
- Applicable for display, recording, monitoring, controlling

Transducers for active and reactive power are available for different systems.



SINEAX P530 / Q531

- Monitoring of power demand
- Nominal voltages up to 690 V, nominal current up to 6 A
- Applicable for display, recording, monitoring, controlling
- Connection via transformer or directly

Energy management

Acquiring, evaluating and optimising the energy consumption and its allocation to incurring cost centres constitutes a central task of any company. To enable its recognition on all levels, we offer all of the required components, from energy meters and summators through to the analysis and billing software.



Data management Software - SMARTCOLLECT PM10

SMARTCOLLECT PM10 constitutes a software for easy and safe measured data acquisition as well as data analysis focussing on energy management. With SMARTCOLLECT PM10, any relevant consumption data of current, water, gas or heat can be acquired, stored, visualised as well as automatically reported.



SMARTCONTROL - for central acquisition of meter readings

- Acquisition of energy and consumption data, temperatures, switching statuses and process variables
- Error message management, continuous comparison of characteristic values and indication of errors via switching output, e-mail or SMS
- Peak load management in combination with switching outputs
- Manufacturer-independent connection of data sources via analog, digital or S0 pulse and temperature inputs as well as universal M-bus, LON and Modbus interfaces



Energy meters - with MID approval

- Professional energy meters for 2, 3, 4 wire systems with 65 A direct or 1 A, 5 A transformer connection
- Flexible communication via integrated LON, M-bus, L-bus interface or pulse output
- Configurable, multifunctional variants to acquire reactive energy and mains variables

Power quality

The quality of energy available in electric networks is determined by the consumers connected. Their power consumption is often non-linear and influences the network quality negatively. This may impair the smooth operation of consumers (e.g. of production lines or computer centres). The quality of the network voltage which a power supplier has to provide is thus determined by international standards. But also energy consumers and equipment manufacturers must limit their feedback to the power system. For monitoring the compliance with standard values devices for temporary, mobile use and firm installation in the facility part to be monitored are available.



APLUS TFT

SINEAX CAM



Mavosys



ANGULAR POSITION ENGINEERING

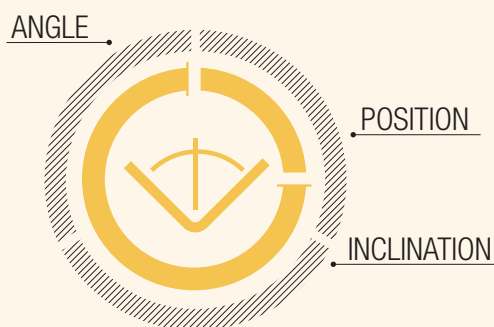
With innovative technology at the correct angle. And within a safe range.

Be it the crane booms under heavy loads, passenger and container vessels at sea or aligned solar plants:

Almost anywhere in machine construction and transport, even the smallest changes in inclination can cause substantial effects. Both directly on the component concerned and subsequently on the entire system. It is thus very important that these changes are exactly measured in order to start compensating action immediately.



MEASURING TASKS OF ANGULAR POSITION ENGINEERING



ANGLE

Be it the mounting version, in robust design or as hollow shaft transmitter: Angular position instruments of Camille Bauer are free of wear, low in maintenance and can be used almost anywhere. They have been designed for extreme application conditions and typically transform the angular position of a shaft into a proportional analog or digital signal.

INCLINATION

The exact position is often required when monitoring moveable objects like crane booms, vehicles, platforms or weir flaps. Inclination sensors are used to determine the deviation from the horizontal or vertical line without requiring a mechanical connection to the drive element.

POSITION

Knowing the exact position of an object is indispensable in machine and plant construction. This requires robust and reliable sensor systems which not only comply with their measuring task under extreme environmental conditions but also effectively protect people and the environment.



KINAX WT720 Absolute, programmable shaft transmitter for angular position for applications in rough environments, diameter 58 mm

- Robust transmitter version suitable for field applications
- Absolute value angular transmitter
- Capacitive measuring system
- Low wear and maintenance free
- Safe electrical connection thanks to spring-type clamp and reverse polarity protection
- sturdy against high mechanical loads
- High degree of sealing against water and dust (housing protection class IP67/IP69K)
- Measuring range linear or V-characteristic free programmable
- Interface analog 4 ... 20 mA (2-wire connection)
- Available with explosion protection „Ex ia IIC T4 Gb“, „Ex ia IIIC T80°C Db“ and „Ex tb IIIC T80°C Db“ according to ATEX and IECEx
- Obtainable with GL (Germanischer Lloyd)



KINAX HW730 Absolute, programmable hollow-shaft angular position transmitter for applications in rough environments, diameter 78 mm

- Robust hollow shaft angular transmitter suitable for field applications
- High absolute accuracy ($\pm 0.35^\circ$) thanks to capacitive 2-wire technology
- Low wear and maintenance free
- Safe electrical connection thanks to spring-type clamp and reverse polarity protection
- Sturdy against high mechanical loads
- High degree of sealing against water and dust (housing protection class IP67/IP69K)
- Flexible and easy to install thanks to hollow shaft up to 30 mm
- Measuring range linear or V-characteristic free programmable
- Interface analog 4 ... 20 mA (2-wire connection) and digital Modbus with PoE
- Easy, variable installation thanks to hollow shaft \varnothing 30/20/16/12/10 mm
- Available with explosion protection „Ex ia IIC T4 Gb“, „Ex ia IIIC T80°C Db“ and „Ex tb IIIC T80°C Db“ according to ATEX and IECEx
- Obtainable with GL (Germanischer Lloyd)



KINAX WT707 / WT717 Absolute shaft angular position transmitter for applications in rough environments, diameter >100 mm

- Robust single- or multiturn angular transmitter suitable for field applications
- Absolute value angular transmitter
- Sturdy against high mechanical loads
- Low wear and maintenance free
- Programmable and non-programmable versions
- Interface analog 4 ... 20 mA
- Available with explosion protection „Ex ia IIC T6 Gb“, according to ATEX and IECEx
- Obtainable with GL (Germanischer Lloyd)
- Available in sea-water resistant version
- Also available with gear ratio up to 1600:1



KINAX 3W2 / 2W2 Absolute shaft angular position transmitter to be installed

- Compact version to be installed into other equipment and apparatus
- Absolute value angular transmitter
- Low wear and maintenance free
- Small starting torque < 0.001 Ncm
- Programmable and non-programmable versions
- Interface analog 4 ... 20 mA (2-wire connection)
- Available with explosion protection „Ex ia IIC T6 Gb“, according to ATEX and IECEx
- Obtainable with GL (Germanischer Lloyd)



KINAX WT710 / WT711 Absolute shaft angular transmitter for surface mounting

- Absolute angular position transmitter for surface mounting for building into other equipment and apparatus in single- or multiturn
- Low wear and maintenance free
- Small starting torque < 0.001 Ncm
- Programmable and non-programmable versions
- Interface analog 4 ... 20 (2-wire connection)
- Available with explosion protection „Ex ia IIC T6 Gb“, according to ATEX and IECEx



KINAX N702 Programmable inclination transmitter unidimensional

- Robust inclination transmitter suitable for field applications
- Absolute position always available
- Magnetostrictive measuring system
- High degree of absolute measuring accuracy ($\pm 0.2^\circ$)
- Unidimensional oil-damped pendulum system
- Measuring range and sense of rotation free programmable
- Interface analog 4 ... 20 mA and digital CANopen or SSI
- Easy installation and commissioning



KINAX N702 INOX Programmable inclination transmitter

- Hermetic watertight and dust-proof housing IP68/IP69K
- Optimally resistant to aggressive media such as sea water and detergents
- Stainless steel housing INOX AISI 316Ti (1.4571)
- High degree of absolute measuring accuracy ($\pm 0.2^\circ$)
- Resistant against high mechanical strains thanks to robust design and high quality materials
- Safe electrical connection through flexible control cable
- Standard synchro flange or mounting plate
- 2-wire connection via flexible control cable
- Free parameterization via control line
- Interface analog 4 ... 20 mA or digital HART



PROCESS CONTROL ENGINEERING

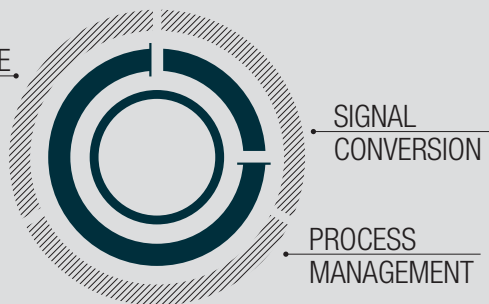
For a smooth flow of information and for cost-effective processes.

The more complex a process is designed, the more important are precise instruments for its continuous progression: They assume and secure the flow of information within the system. Instruments of Camille Bauer are successfully used for these technological management tasks in numerous industries.



MEASURING TASKS IN PROCESS CONTROL ENGINEERING

TEMPERATURE



TEMPERATURE

Temperature is the most frequently measured variable in the process industry. Respective sensors are used in accordance with requirements, mostly thermocouples or resistance thermometers. For further processing, this sensor data is reliably converted by Camille Bauer signal converters into standard signal or to a fieldbus.

PROCESS MANAGEMENT

Process management systems assume the visualisation, recording and management of process data. These systems have intelligent control functions and form the interface of analog signals as well as bus systems to the next higher-ranking control level.

SIGNAL CONVERSION

The safety and availability of a process plant take first place in the considerations of plant operators. In order to transfer the signals in a safe manner and free of any disturbance they often have to be amplified, galvanically isolated between the individual circuits and possibly adapted to requirements. This effectively prevents potential transfer – people and plant are protected in an optimum fashion.



SINEAX V604s Programmable multifunctional transmitter

- Measurement of DC voltage, DC current, temperature (RTD, TC) and resistance
- 2 inputs (e.g. for sensor redundancy or subtraction)
- 2 outputs (U and / or I)
- System capability: Communication via Modbus interface
- Freely programmable relay, e.g. for limit or alarm signalling
- AC/DC wide-range power supply unit
- Due to intelligent mathematical functions applicable for:
 - DC energy metering
 - Power measurement
 - Load monitoring
 - Difference monitoring
 - Redundant temperature measurement
 - Signal adaptation
 - Gradient / limit value monitoring



SINEAX V624 Programmable temperature transmitter

- Programmable without any power supply connection
- Zero and span calibration via software
- Suitable for temperature measurement in hazardous areas
- Sensor breakage and short-circuit monitoring



SINEAX TV809 Programmable isolation amplifier

- Current or voltage output in one device
- Safe isolation, enhanced up to 600 V (Cat. II) or 1000 V (Cat. I)
- Limit value relay secures monitoring function
- Intrinsically safe input for signals from hazardous areas



SINEAX TV829 High-voltage isolation amplifier

- Safe galvanic isolation according to DIN EN 61010-1 and DIN EN 50124 (Cat. III)
- High test voltage: 10 kV
- Calibrated range change
- High common-mode rejection ratio: 150 dB



SINEAX TV819 Isolation amplifier

- Standard and non-standard signals
- Safe isolation, enhanced up to 600 V (Cat. II) or 1000 V (Cat. I)
- Manual zero and span calibration



SINEAX B812 Standard power supply unit

- HART pass-through
- Suitable for the supply of transmitters in hazardous areas
- Line monitoring via LED
- Setting time <0.3 ms



SINEAX VS-Series

- Signal converters with very narrow design, only 6.2 mm wide
- On site parameterizing via DIP-switches
- Electrical isolation of all circuits
- Spring-cage clamp connection
- Functions as isolating amplifier, temperature transmitter, or alarm unit.
- Power supply optional via DIN rail connector.



SINEAX VK616 In head transmitter

- VK616: Programmable head transmitter also for applications in hazardous areas (zone 1)
- Sensor breakage and short-circuit monitoring

Videographic recorder

The latest generation of paperless Camille Bauer videographic recorders are modular and may thus be adapted individually to the requirements of the most varied applications.

Today videographic recorders are not used for data recording only, but also as powerful indicators, intelligent interfaces between different signal transmission and bus systems (e.g. 4...20 mA to MODBUS) and as intelligent and independent computing units on site.



LINAX A315 Videographic recorder

- Inexpensive videographic recorder with a large function volume
- Very distinct, high-quality TFT display
- Device can be equipped and extended according to customer requirements
- Device protection IP65 (front)
- Fast scanning of 100 ms/channel
- Low operating costs (TCO)



LINAX A325 Videographic recorder

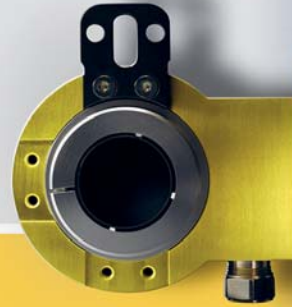
- Powerful videographic recorder with high performance
- Simple intuitive operation, with built-in help
- Device can be equipped and extended according to customer requirements
- For applications in rough environment due to IP65 / NEMA4 device protection (front)
- Data security in accordance with FDA 21 CFR Part 11
- Guaranteed data integrity (flash memory)
- Low operating costs (TCO)



HEAVY CURRENT ENGINEERING



ANGULAR POSITION ENGINEERING



PROCESS CONTROL ENGINEERING



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