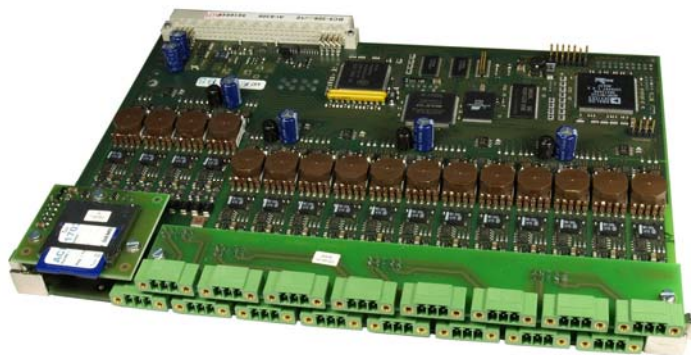


SIEMENS

SICAM BC

AI-5306/MMS55

Analog Inputs 16x +20 mA, 1 ms Sampling



Peripheral element for maintenance and monitoring of selected switchgears

- 16 analog inputs, galvanically insulated from logic (± 20 mA)
- Sample rate 1 ms
- Acquisition and processing according to IEC 60870-5-101/104

Applications

The system element AI-5306/MMS55 is a peripheral element with microprocessor support and is used in automation unit SICAM BC. It is deployed for monitoring gas isolated switchgears (GIS) and for acquisition of 16 analog inputs according IEC-60870-5-101/104.

The functionality of the MMS55 firmware is limited to SF6 gas pressure measurement and arc detection, as well as recording of data on an SD card.

The gas pressure measurement has been implemented for WIKA sensors with non-linear course. Any other functionality required for monitoring switchgear for maintenance purposes is not included in the MMS55 and must be implemented in the form of a function plan integrated in a suitable application.

The Acquisition Functions in Detail

- **Currents**
 - Settable acquisition grid n*100 ms ^t
 - Measurement range settable with a resolution of ^t
 - 13 bits + sign at ±20 mA
 - Shrinking the range results in decreasing resolution
 - Revision ^t
 - Acquisition
 - Noise rejection ^t
 - Automatic calibration t
 - Smoothing t
 - Adaption ^t
 - Linear (normalized, technologically scaled or short floating point)
 - Suppression of zero range
 - Plausibility check
 - Change monitoring ^t
 - Spontaneous transmission of changes ^t

The above mentioned functions are described in detail in the document *SICAM RTUs Common Functions Peripheral Elements according to IEC 60870-5-101/104*.

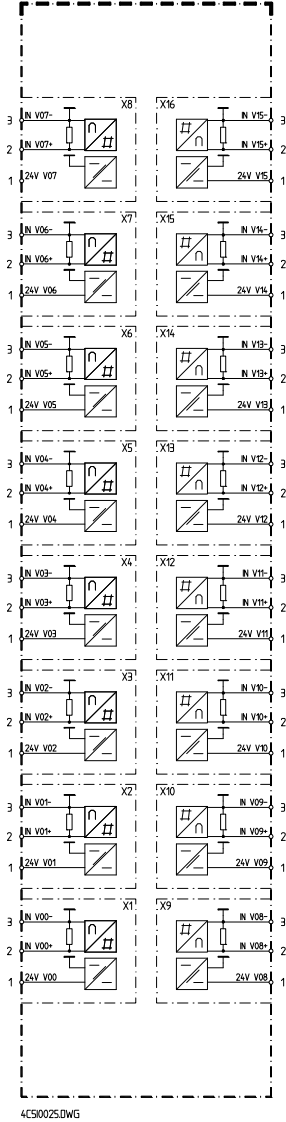
SF6 gas pressure measurement and arc detection

- SF6 gas pressure measurement and arc detection
- Sensor monitoring
- Revision
- SD card data recording
- 24 V transmitter supply

^{t1} **Telecontrol**

the function delivers (acquisition) **spontaneously** transmitted process information or is controlled by such information (output); partly, periodically transmitted information is also created/required

Block diagram



Technical Specifications

Processor and Memory			
Main Processor	DSP Analog Devices BLACKFIN BF531, 400 MHz		
Program memory	Flash	2 Mbyte	
Main memory	DRAM	8 Mbyte	
Parameter memory	EEPROM	256 Byte	
SD-Card	FLASH CARD	CC6-095 / 6MF12131GA050AA0	
Inputs for Currents			
16 current inputs (X1 – X16)	<ul style="list-style-type: none"> Nominal measuring range -20 mA...0...+20 mA Burden 121 Ω Burden voltage 2.45 V All inputs are galvanically insulated from logic circuits and ground Each input is galvanically insulated from each other input 		
Resolution	13 Bit + sign		
Scan rate	125 μ s		
Accuracy	<ul style="list-style-type: none"> Start failure 0.25% max @ 25°C Temperature failure 0.5% max @ -25...+75°C Long time failure 0.3% max per anno 50/60 Hz-Signals 5% max Differential Non Linearity (DNL) +1 Bit / -2 Bit 		
Power supply			
Operating voltage	5VDC \pm 5%	15,5 W max 11 W max 7.5 W typ 4 W typ	$I_{out} = 8 \times 30$ mA $I_{out} = 8 \times 20$ mA $I_{out} = 8 \times 10$ mA $I_{out} = 8 \times 0$ mA
The voltage is picked off at the bus of the mounting rack			
Auxiliary voltage	Each input group has an auxiliary voltage output with: <ul style="list-style-type: none"> Voltage 24 VDC Tolerance $\pm 15\%$ Output current 30 mA Overload protection 35 mA typ 		
Mechanics and Connectors			
Dimensions	Double-Euroformat 233.4 x 160 mm, 4WU		
Bus connector (X99, rear side)	VG-connector, 96-pole (DIN 41612), type C (partly equipped)		
Peripheral connectors (X1 – X16, front side)	<ul style="list-style-type: none"> FMC 1,5/3-STF-3,5 Phoenix Contact 		
Weight	Approx. 260 g (approx. 400 g including front panel and connectors)		

Literature

Document	Item no.
SICAM RTUs Common Functions Peripheral Elements according to IEC 60870-5-101/104	DC0-011-2