CMC 850

CMC 850: IEC 61850 Test Set

The CMC 850 is the world's first protection test set dedicated to IEC 61850. It focuses on the real-time communication methods of GOOSE and Sampled Values to interface with the devices under test. The test set works with OMICRON's proven Test Universe software and offers even more useful functions embedded directly in the device.

Technical Data

IEC 61850 GOOSE	
Simulation	Mapping of binary outputs to data attributes in published GOOSE messages. Number of virtual binary outputs: 360 Number of GOOSEs to be published: 128
Subscription	Mapping of data attributes from subscribed GOOSE messages to binary inputs. Number of virtual binary inputs: 360 Number of GOOSEs to be subscribed: 128
Performance	Type 1A; Class P2/3 (IEC 61850-5). Processing time (application to network or vice versa): < 1 ms
VLAN support	Selectable priority and VLAN-ID
IEC 61850 Sampled Values (Publishing)	
Specification	According to the "Implementation Guideline for Digital Interface to Instrument Transformers Using IEC 61850-9-2" of the UCA International Users Group
Sampling rate	80 samples per cycle for nominal frequencies of 50 Hz and 60 Hz; synchronized with CMIRIG-B.
Synchronization	Synchronization attribute (smpSynch) is set when the CMC is in synchronized operation mode utilizing CMIRIG-B. Sample count (smpCnt) zero is aligned with top of the second (IRIG-B and PPS) Accuracy data see below
VLAN support	Selectable priority and VLAN-ID
Max. number of SV streams	3
Communications interfaces	
Ethernet	Two 10/100 Mbit/s PoE[1] Ethernet ports: • 10/100 Mbit/s (10/100 Base-TX, auto-sensing, auto-crossover, RJ45 connector for twisted pair cables) • IEEE 802.3af compliant • Port capability limited to one Class 1 (3.84 W) and one Class 2 (6.49 W) powered device
Time Synchronization	
Timing accuracy IRIG-B synchronization with CMIRIG-B GPS synchronization with CMGPS	 error < 1 µs typ., < 5 µs guar. error < 1 µs typ., < 5 µs guar.
Network Time Protocol (NTP)	NTP version 4
Precision Time Protocol (PTP)	Slave node according to IEEE 1588-2002 (version 1)
Low level outputs[2]	
Number of outputs	12
Setting range	0 ... ±10 Vpk
Max. output current	1 mA
Accuracy	error < 0.025 % typ., < 0.07 % guar. at 1 ... 10 V
Resolution	250 µV
Distortion (THD+N)[3]	< 0.015 % typ., < 0.05 % guar.
Unconventional CT/VT simulation	linear, Rogowski (transient and sinewave)
Overload indication	yes
Isolation	SELV
Connection	2 x 16 pin combination socket

Binary outputs, transistor		
Type		open collector transistor outputs
Number		4
Update rate		10 kHz
Imax		5 mA
Connection		16 pin combination socket
External power supply unit		
Nominal input voltage		110 – 240 VAC, 1-phase
Permissible input voltage		99 ... 264 VAC
Nominal frequency		50/60 Hz
Output voltage		48 VDC (±6.25 %)
Rated current		1.66 A
Rated power		80 W
Environmental conditions		
Operation temperature		0 ... +50 °C (+32 ... +122 °F)
Storage temperature		-25 ... +70 °C (-13 ... +158 °F)
Humidity range		Relative humidity 5 ... 95 %, non-condensing
Vibration		IEC 60068-2-6 (20 m/s² at 10 ... 150 Hz)
Shock		IEC 60068-2-27 (15 g/11 ms half-sine)
Safety Standards, Electromagnetic Compatibility		
EMC		The product adheres to the electromagnetic compatibility (EMC) Directive 2004/108/EC (CE conform).
Emission	Europe	EN 61326-1; EN 61000-6-4; EN 61000-3-2/3
	International	IEC 61326-1;IEC 61000-6-4; IEC 61000-3-2/3
	USA	FCC Subpart B of Part 15 Class A
Immunity	Europe	EN 61326-1; EN 61000-6-2; EN 61000-4-2/3/4/5/6/11
	International	IEC 61326-1;IEC 61000-6-2; IEC 61000-4-2/3/4/5/6/11
Safety	Europe	EN 61010-1 Insulation of PC and SELV interfaces complies with EN 60950-1
	International	IEC 61010-1
	USA	UL 61010-1
	Canada	CAN/CSA-C22.2 No 61010-1-04
Mechanical data		
Weight		1.7 kg (3.7 lbs)
Dimensions (W x H x D)		85 x 145 x 325 mm (3.3 x 5.7 x 12.8 in)
Certifications		
		TÜV SÜD Production monitored Safety tested Developed and manufactured under an ISO 9001 registered system

[1] PoE = Power over Ethernet
[2] For directly testing relays with low level inputs by simulating signals from non conventional CTs and VTs with low level interfaces and for controlling external voltage or current amplifiers
[3] THD+N: Values at 50/60 Hz, 20 kHz measurement bandwidth, nominal value, and nominal load