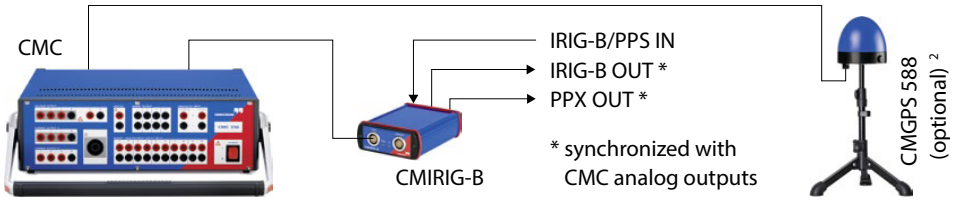
CMIRIG-B

OMICRON

CMIRIG-B Interface

VEHZ1150

CMIRIG-B is an interface box enabling the connection of devices sending or receiving the IRIG-B protocol or PPS signals with CMC test sets [1]. CMIRIG-B performs the level conversion between the CMC and the sources or receivers. The actual IRIG-B decoding and coding functionality is implemented in the CMC test set. CMGPS 588 can optionally be used as PTP Grandmaster Clock in order to establish a link to absolute UTC time.



Typical applications for CMIRIG-B are:

> Synchronization of the analog outputs of two or more CMC test sets with an external IRIG-B protocol or 1PPS signal. Example: End-to-end testing

> Testing of wide area protection with IRIG-B functionality using the IRIG-B time protocol generated by the CMC test set. Example: Testing of phasor measurement units (PMU). Supported standard (IRIG-B extension): IEEE C37.118 (Synchrophasor standard)

> Master/Slave Operation: A CMC test set (master) generates an IRIG-B protocol and synchronizes other CMC test sets (slaves) at the same location

Software modules supporting CMIRIG-B:
State Sequencer, Pulse Ramping, Advanced TransPlay, Advanced Differential, NetSim, PQ Signal Generator and EnerLyzer.

Specifications

IRIG-B output	
IRIG-Standard	200-04
Data formats	B00x (demodulated, DC level-shift), B20x (Manchester modulated, DC level-shift)
Characteristic	5 V (TTL), 150 mA, for 50 Ω coaxial signal distribution
Synchrophasor (PMU) testing	Configurable with or without IEEE C37.118 extensions
PPX output	
Configurable pulse output, rising edge is in coincidence with the change of an UTC second. e.g. 1PPS (1 pulse per second: pulse rate = 1 s)	
Output characteristic	5 V (TTL), 150 mA, for 50 Ω coaxial signal distribution
Minimum pulse length	1 ms
Pulse rate	IRIG-B encoder: 1 s IRIG-B decoder: 0=single, 1 ... 65535 seconds
IRIG-B input	
IRIG-B input is used, if IRIG-B decoder is configured	
IRIG-Standard	200-04
Data formats	B00x (demodulated, DC level-shift)
Characteristic	5 V (TTL)
Synchrophasor (PMU) testing	Configurable with or without IEEE C37.118 extensions
PPS input	
PPS input is used if external PPS source is connected and IRIG-B encoder is configured	
Timing	
Delay time PPS source to PPX output	Typ. < 1 µs, max. 1.5 µs
Time skew PPX output to IRIG-B output	Typ. < 0.1 µs, max. 0.5 µs
Time error of time reference source to analog outputs [3]	Typ. < ±1 µs, max. ±5 µs[4]
Mechanical data	
Weight	260 g (0.57 lb)
Dimensions (W x H x D)	83 x 35 x 130 mm (3.3 x 1.4 x 5.1 in)
Delivery contents	
CMIRIG-B interface box, 16-pole LEMO cable [VEHK0003]	

[1] CMC 356, CMC 353, CMC 256plus, CMC 256-6 with any NET-1 hardware option, CMC 850
[2] CMC 356, CMC 353, CMC 256plus, CMC 850
[3] Valid for CMC output frequencies < 100 Hz and re-synchronized analog output signals
[4] CMC 356 and CMC 353: typ. < ±5 µs, max. ±20 µs