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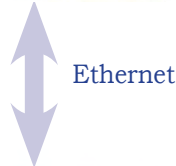
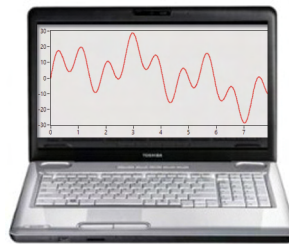
V.O. 13 Line, 6-8, office 41H
Saint-Petersburg, Russia, 199034
Tel./fax: +7 812 327-21-11, +7 812 331-87-36
E-mail: mars@mars-energo.com

F A S I E

CALIBRATOR OF 61850-9-2LE DATA STREAMS

MarsGen-61850

Control terminal with
Energoforma-61850
software



Universal port for
connecting digital
stream sources

Ethernet port for
connection to a PC
which synthesizes digital
streams and controls
the whole instrument

PTP
synchronization

Frequency inputs for
connection of external
synchronization sources



Purpose

Synthesis of IEC 61850-9-2 data streams in compliance with all timing, continuity and UTC synchronization requirements for packet data transmission

Specifications

Parameter	Value
Synchronization: 1PPS (1 Hz) PTP	Error of setting: $\pm 2 \cdot 10^{-6}$ Hz, <1 μ s IEEE 1588
Sampling frequency on the IEC 61850-9-2 output, samples per second	4000 to 38 400
Waveforms	Sine, triangle, meander, ramp, subharmonics, even harmonics, phase control

Setting accuracy of digital signals

Parameter	Range	Increments	Intrinsic error
Fundamental harmonic			
Fundamental frequency	40 to 500 Hz	0.00001	± 0.0003 %
Voltage	10 mV to 15 MV	1.0 μ V	± 0.03 %
Current	1 mA to 1,5 MA	0.1 μ A	± 0.03 %
Phase shift	$-180^\circ \dots +180^\circ$	0.0001	$\pm 0.03^\circ$
Active power	0.01 W to 15 TW	—	± 0.03 %
PQP			
Harmonic order (in 0.1 increments)	0.1 to 50	—	—
RMS of voltage or current harmonic (% of fundamental)	0 ... 50 %	—	± 1 %
Flicker	0.2 to 10	—	± 1.5 %
Duration of events	0.02 to 600 s	—	0,005 s