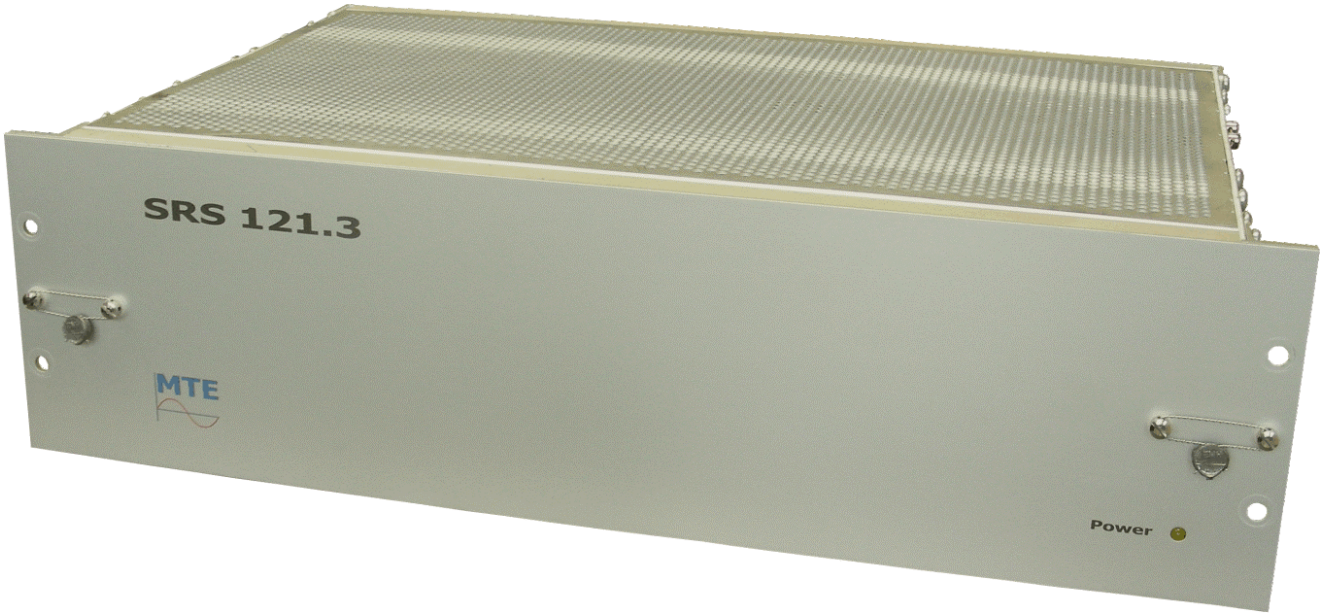
MTE Meter Test Equipment

SRS 121.3

Three-Phase Electronic System Reference Standard, Class 0.05



The SRS 121.3 three-phase, electronic system reference standard has been especially developed for use with meter test systems.

The SRS 121.3 electronic system reference standard is a precision measurement unit for all AC values that are used in the measurement of energy. The wide measurement range, high precision and excellent immunity to interference are the outstanding features of this instrument. It is the ideal measuring unit for verification of electricity meters in the test area.

This reference standard is operated completely via the RS 232C serial line interface.

Key features of the SRS 121.3

- Three-phase reference standard
- Precision measurement unit for AC values in the frequency range of 45 to 65 Hz
- Simultaneous availability of the measured values over the RS 232C serial line interface
- Test of two, three and four-wire meters
- Integrated measurement connection mode switching
- Easy operation due to the use of processor technology
- Operation verification with error indication
- Integrated RS 232C serial line interface for data transmission and programmed operation using an external computer
- Current and voltage ranges: 30 V to 480 V, 1 mA to 120 A

Other characteristics

Measurements are carried out in the four quadrants. They are valid for all AC operational modes, including measurement of the power factor and the phase angle. Reactive power measurements may be made either in the natural or artificial connection mode. The measurement system uses the analogue/digital converter principle.

The operation and processing of the measured values is carried out using special operation commands from a personal computer. The internal, automatic, range selection may be switched off, and in this case the load point range is directly selected by the PC

Technical data SRS 121.3

Mains supply voltage:	86...260 V, 47...65 Hz
Power consumption:	maximum 50 VA
Housing:	19” plug-in unit, 3 HE
Dimension:	W 483 x H 133 x T 342 [mm]
Weight:	approx. 7 kg
Variation Due to the Influence of Mains Supply on the Measuring Variable:	≤ 0.005 % at 10 % variation
Ambient temperature:	0℃ ... + 50℃
Temperature coefficient:	≤ 0.0025 % / ℃ 0℃ … 45℃ ≤ 0.0050 % / ℃ 45℃ … 50℃
Frequency range of the measurement value:	45 ... 65 Hz
Influence of external fields:	≤ 0.05 % / mT

Current measurement (I)

Current range:	1 mA	...	120 A	
Internal ranges:	1 mA	...	7.5 mA	α=16000
	7.5 mA	...	30 mA	α= 4000
	30 mA	...	120 mA	α= 1000
	120 mA	...	480 mA	α= 250
	480 mA	...	1.875 A	α= 64
	1.875 A	...	7.5 A	α= 16
	7.5 A	...	30 A	α= 4
	30 A	...	120 A	α= 1

Display range:	0.00100 A ... 120.000 A
Error:	E ≤ ± 0.05 % 7.5 mA ... 120 A of the measured value E ≤ ± 0.05 % 1 mA ... 7.5 mA of the measurement range’s final value
Time base:	1 (0.1 ... 9999) s

Voltage measurement (U)

Voltage range:	30 V	...	480 V	
Internal ranges:	30 V	...	60 V	β= 8
	60 V	...	120 V	β= 4
	120 V	...	240 V	β= 2
	240 V	...	480 V	β= 1

Display range:	30.000 ... 480.000 V
Error:	E ≤ ± 0.05 % of the measured value
Time base:	1 (0.1... 9999) s

Power measurement (P, Q, S)

Active power P:	E ≤ ± 0.05 % 7.5 mA ... 120 A of the measured value * E ≤ ± 0.05 % 1 mA ... 7.5 mA of the measurement range’s final value *
Reactive power Q:	E ≤ ± 0.05 % 7.5 mA ... 120 A of the measured value * E ≤ ± 0.05 % 1 mA ... 7.5 mA of the measurement range’s final value *
Apparent power S:	E ≤ ± 0.05 % 7.5 mA ... 120 A of the measured value E ≤ ± 0.05 % 1 mA ... 7.5 mA of the measurement range’s final value * in relation to the apparent power
Display range:	6-digit for each measuring point

Energy measurement (W)

Connections and errors as under power measurement

Error Calculation (F)

Constant Range:	1 ... 1’000’000 Imp./kWh (kvarh, kVAh) and 1 ... 1’000’000 Imp./Ws (vars, VAs)
Display Range:	-100.000% ... 999.999%

Pulse Input (TK)

Input level:	5 ... 12 V
Input frequency:	max. 200 kHz
Input supply:	11.5 ... 12.5 V (I < 60 mA)

Frequency Output (fo)

Base constant: ΣC_P = 625 Imp./Wh

Output frequency: $$f_o = \frac{\Sigma P \cdot \Sigma C_P \cdot \alpha \cdot \beta}{3600}$$

α, β The factors of the highest current and voltage range reached are to be substituted here.

Pulse Ratio: 1:1

Safety Requirements

CE-certified

Isolation protection:	EN 61010-1
Degree of protection:	IP-20
Storage Temperature:	- 20 ... + 55℃
Relative humidity:	≤ 85% at Ta ≤ 21℃
Relative humidity at 30 days/year spread:	≤ 95% at Ta ≤ 25℃