

Annex to ISO/IEC 17025:2005 declaration of accreditation for registration number: **K 159**

of **Siemens Industry Software B.V.**
Digital Factory Division
Product Lifecycle Management, Simulations and Test Solutions

This annex is valid from: **26-10-2016** to **01-08-2020**

Replaces annex dated: **15-06-2015**

Location where activities are performed under accreditation

Head Office

Druivenstraat 47
 4816 KB
 BREDA
 The Netherlands

HCS code	Measured quantity, Range	Frequency	CMC¹	Remarks
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Calibration of LMS SCADAS signal conditioning and data acquisition equipment

LF 1 0	Direct voltage			Generating. U stands for generated DC voltage
	U ≤ 0.25 V		22 µV	
	0.25 V < U ≤ 4 V		220 µV	
	4 V < U ≤ 10 V		460 µV	
LF 1 0	Direct voltage			Measuring the internal reference generator with a DMM. U stands for generated DC voltage
	U ≤ 0.25 V		22 µV	
	0.25 V < U ≤ 4 V		220 µV	
LF 1 0	Direct voltage			Measuring residual offset. IR stands for "Input Range"
	IR ≤ 100 mV		0.6 µV	Bridge channels
	100 mV < IR ≤ 316 mV		1.2 µV	Bridge channels
	316 mV < IR ≤ 1 V		2.2 µV	Bridge channels

This annex has been approved by:

Ir. J.C. van der Poel
 Chief Executive

¹ Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, U, is calculated according to EA-4/02 "Expression of the Uncertainty of Measurement in Calibration".

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HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks
	1 V < IR ≤ 3.16 V		8.8 μV	Bridge channels
	3.16 V < IR ≤ 10 V		21 μV	Bridge channels
	IR ≤ 316 mV		4.8 μV	V/ICP channels
	316 mV < IR ≤ 1 V		5.2 μV	V/ICP channels
	1 V < IR ≤ 3.16 V		8.0 μV	V/ICP channels
	3.16 V < IR ≤ 10 V		21 μV	V/ICP channels
LF 3 0	Alternating voltage			Measuring amplitude accuracy. IR stands for "Input Range"
	IR ≤ 100 mV	1000 Hz	48 μV	Bridge channels
	100 mV < IR ≤ 316 mV	1000 Hz	66 μV	V/ICP and bridge channels
	316 mV < IR ≤ 1 V	1000 Hz	120 μV	V/ICP and bridge channels
	1 V < IR ≤ 3.16 V	1000 Hz	310 μV	V/ICP and bridge channels
	3.16 V < IR ≤ 10 V	1000 Hz	530 μV	V/ICP and bridge channels
LF 3 0	Alternating charge			Measuring amplitude accuracy. Using internal capacitor for voltage to charge conversion. IR stands for "Input Range"
	IR ≤ 316 pC	1000 Hz	3.0 pC	Charge input channels
	316 pC < IR ≤ 1 nC	1000 Hz	9.2 pC	Charge input channels
	1 nC < IR ≤ 3.16 nC	1000 Hz	30 pC	Charge input channels
	3.16 nC < IR ≤ 10 nC	1000 Hz	96 pC	Charge input channels
LF 3 0	Noise			Measuring RMS noise and spurious free floor - voltage frequency domain measurement. IR stands for "Input Range"
	IR ≤ 100 mV	20 Hz ~ 20 kHz bandwidth	28 pV	Bridge channels
	100 mV < IR ≤ 316 mV	20 Hz ~ 20 kHz bandwidth	86 pV	Bridge channels
	316 mV < IR ≤ 1V	20 Hz ~ 20 kHz bandwidth	280 pV	Bridge channels

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HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks
	1 V < IR ≤ 3.16 V	20 Hz ~ 20 kHz bandwidth	860 pV	Bridge channels
	3.16 V < IR ≤ 10 V	20 Hz ~ 20 kHz bandwidth	3.0 nV	Bridge channels
	IR ≤ 316 mV	20 Hz ~ 20 kHz bandwidth	2.0 nV	V/ICP channels
	316 mV < IR ≤ 1 V	20 Hz ~ 20 kHz bandwidth	2.0 nV	V/ICP channels
	1 V < IR ≤ 3.16 V	20 Hz ~ 20 kHz bandwidth	2.1 nV	V/ICP channels
	3.16 V < IR ≤ 10 V	20 Hz ~ 20 kHz bandwidth	3.4 nV	V/ICP channels
LF 3 0	Noise			Measuring RMS noise and spurious free floor - charge frequency domain measurement, using internal capacitor for voltage to charge conversion. IR stands for "Input Range"
	IR ≤ 316 pC	20 Hz ~ 20 kHz bandwidth	0.1 aC	Charge input channels
	316 pC < IR ≤ 1 nC	20 Hz ~ 20 kHz bandwidth	0.3 aC	Charge input channels
	1 nC < IR ≤ 3.16 nC	20 Hz ~ 20 kHz bandwidth	0.9 aC	Charge input channels
	3.16 nC < IR ≤ 10 nC	20 Hz ~ 20 kHz bandwidth	2.8 aC	Charge input channels
LF 3 0	Crosstalk (voltage)			Measuring interchannel crosstalk. IR stands for "Input Range"
	IR ≤ 100 mV	1.5 kHz ~ 15 kHz	60 nV	Bridge channels
	100 mV < IR ≤ 316 mV	1.5 kHz ~ 15 kHz	68 nV	V/ICP and bridge channels
	316 mV < IR ≤ 1 V	1.5 kHz ~ 15 kHz	150 nV	V/ICP and bridge channels
	1 V < IR ≤ 3.16 V	1.5 kHz ~ 15 kHz	0.4 μV	V/ICP and bridge channels
	3.16 V < IR ≤ 10 V	1.5 kHz ~ 15 kHz	1.3 μV	V/ICP and bridge channels

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HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks
LF 3 0	Crosstalk (charge)			Measuring interchannel crosstalk. Using internal capacitor for voltage to charge conversion. IR stands for "Input Range"
	IR ≤ 316 pC	1.5 kHz ~ 15 kHz	68 aC	Charge input channels
	316 pC < IR ≤ 1 nC	1.5 kHz ~ 15 kHz	150 aC	Charge input channels
	1 nC < IR ≤ 3.16 nC	1.5 kHz ~ 15 kHz	0.4 fC	Charge input channels
	3.16 nC < IR ≤ 10 nC	1.5 kHz ~ 15 kHz	1.3 fC	Charge input channels
LF 3 0	Distortion (voltage)			Measuring harmonics. IR stands for "Input Range"
	IR ≤ 100 mV	993.75 Hz	120 nV	Bridge channels
	100 mV < IR ≤ 316 mV	993.75 Hz	140 nV	V/ICP and bridge channels
	316 mV < IR ≤ 1 V	993.75 Hz	290 nV	V/ICP and bridge channels
	1 V < IR ≤ 3.16 V	993.75 Hz	0.8 μV	V/ICP and bridge channels
	3.16 V < IR ≤ 10 V	993.75 Hz	2.6 μV	V/ICP and bridge channels
LF 3 0	Distortion (charge)			Measuring harmonics. Using internal capacitor for voltage to charge conversion. IR stands for "Input Range"
	IR ≤ 316 pC	993.75 Hz	140 aC	Charge input channels
	316 pC < IR ≤ 1 nC	993.75 Hz	290 aC	Charge input channels
	1 nC < IR ≤ 3.16 nC	993.75 Hz	0.8 fC	Charge input channels
	3.16 nC < IR ≤ 10 nC	993.75 Hz	2.6 fC	Charge input channels
TF 2 1	Frequency	800 Hz	0.1 Hz	Measuring the internal reference frequency accuracy, representing system clock accuracy

Remark:
Calibration of LMS SCADAS signal conditioning and data acquisition equipment