Integrated Current Sensor GXS AFE (Version A) Industrial Only

I_{PM} From 5 to 60 A

Description

The GXS AFE Series is a LEM integrated current transducer solution designed to measure AC and DC current in industrial applications. It features wide bandwidth and low response time, better accommodating high-efficiency power devices such as SiC and GaN. The sensor can reject an external field coming from a noisy environment. Innovative isolation technology and signal conditioning design can meet high isolation levels while sensing the current flowing through the primary conductor. The primary conductor (pins 1 and 4) has a very low electrical resistance of 1.2 mΩ (typical), which enables excellent performance at low power losses. The GXS AFE is capable of measuring currents from 5 to 60A over a wide temperature range. The galvanic isolation between the primary and secondary eliminates the need for any additional insulation, reducing the total footprint and the cost of the system.

Note on Version A – Industrial Grade Only

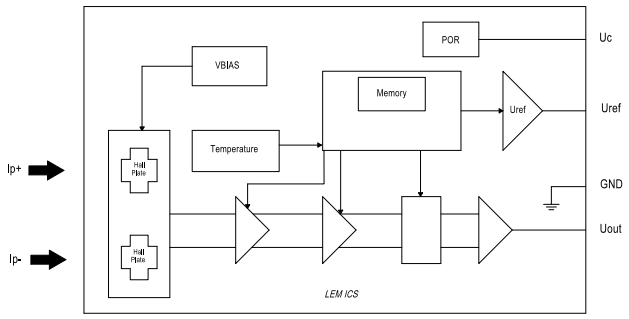
Version A of the GXS Series is dedicated exclusively to industrial application. For AEC-Q100 qualification Grade 0 and specifications tailored to automotive sector requirements, Version Q applies.

Key Features & Advantages

- Bandwidth: 1 MHz / 2 MHz (with −3 dB)
- Response Time: 400 ns / 200 ns
- Current Range: 5 to 60 A (multi-range)
- Primary Resistance: 1.2 mΩ (minimizing heat loss)
- Surge Current Capability: Up to 4 kA (IEC 61000-4-5), industry-leading for industrial environments
- Galvanic Isolation: 3000 Vrms, 4 mm clearance and creepage distances
- Dual Supply Voltage: 3.3 V or 5 V for design flexibility
- Working Voltage: 600Vdc / 424Vrms (for basic isolation)
- Maximum Surge Isolation Withstand Voltage: 6 kV
- Integrated Overcurrent Detection: Internal and external OCD circuits for fast and reliable protection
- Operating Temperature: −40°C to +125°C
- Compact SOIC8L Package: Optimized for PCB space
- Safety Certification: UL62368/EN62368
- RoHS & REACH Compliance

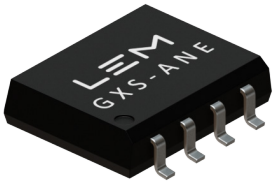
Applications

- Photovoltaic System
- Drives and Motor Control
- Automation and Industrial Power Supply
- OBC/DCDC/PTC Heater
- Charging Pile
- Power Distribution



Product MOQ

GXS-XXX: 2500 pcs/Reel.



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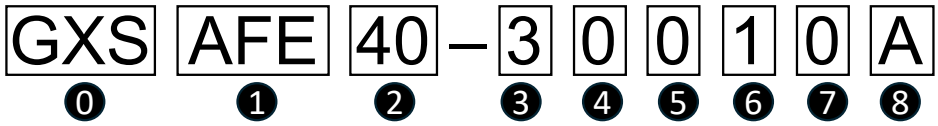
Main Order Information (Recommended the following device)

Part number	Full Scale Primary Current (A)	Nominal current (A)	Power Supply (V)	Sensitivity (mV/A)	Package
GXS AFE 20-30010A	20	8	3.3	66	SOIC 8L
GXS AFE 20-50010A	29	8	5	100	
GXS AFE 30-30110A	30	12	3.3	44	
GXS AFE 40-30010A	40	16	3.3	33	
GXS AFE 50-50010A	50	20	5	40	
GXS AFE 65-30010A	65	26	3.3	20.31	
GXS AFE 65-50010A	65	26	5	30.77	
GXS AFE 66-31110A	66	26	3.3	40	

For more information about LEM stock and lead time, please contact us: **https://www.lem.com/en/form/contact-us**

Product Naming Rules



0. Integrated Current Sensor
1. ASIC Version
2. Full Scale Current (A)
3. Supply Voltage:
   5 – VCC = 5 V; 3 – VCC = 3.3 V
4. Output Directionality:
   0 – Bipolar output; 1 – Unipolar output
5. Output mode:
   0 – Fixed mode output; 1 – Ratiometric mode output
6. Trimming code
7. Operating Temperature Range:
   0 – -40~150°C; 1 – -40~125°C
8. Product Grade: A for Industrial, Q for Automotive

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Pin Definitions

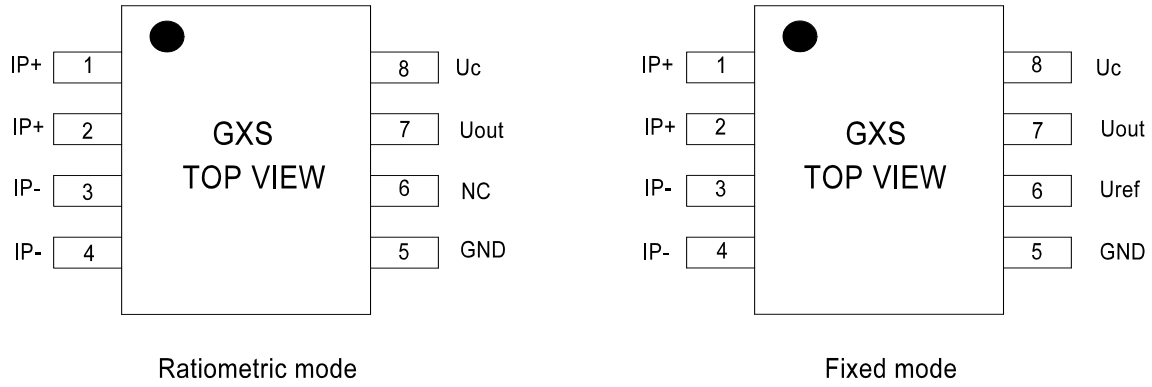

Figure 1: Pin definitions (Ratiometric and Fixed modes)

Pin Number	Name	Function
1–2	I_P+	Input of the primary current
3–4	I_P−	Output of the primary current
5	GND	Ground
6	U_{ref}/NC	R version: Not connected (or connected to GND) F version: Reference Voltage
7	U_{out}	Output voltage
8	U_C	Supply voltage

Application Circuit

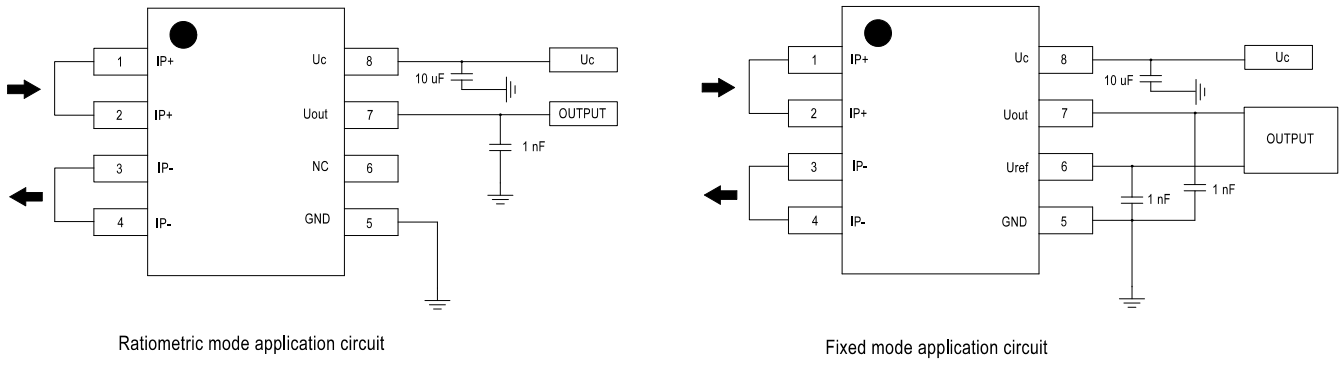

Figure 2: Application circuit Pin (Ratiometric and Fixed modes)

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Absolute maximum ratings

Parameter	Symbol	Unit	Value
Maximum supply voltage @ 25°C	$U_{C\ max}$	V	6.5
Maximum junction temperature [1)]	$T_{J\ max}$	°C	165
Electrostatic discharge voltage (HBM - Human Body Model)	$U_{ESD\ HBM}$	kV	8
Electrostatic discharge voltage (CDM - Charged Device Model)	$U_{ESD\ CDM}$	kV	2
Source sink max current		mA	±25

Note: Absolute maximum ratings apply at 25°C unless otherwise noted.

Stresses above these ratings may cause permanent damage.

Exposure to absolute maximum ratings for extended periods may degrade reliability.

Environmental and mechanical characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	°C	−40		150	
Ambient storage temperature	$T_{A\ st}$	°C	−40		165	
Resistance of the primary @ T_A = 25°C	R_P	mΩ		1.2		

Insulation coordination

Parameter	Symbol	Unit	Value	Comment
RMS voltage for AC insulation test, 50 Hz, 1 min	U_d	V_{rms}	3000	According to UL 62368-1
Impulse withstand voltage 1.2/50 µs	U_{Ni}	kV	6	According to IEC 61000-4-5
Surge current	I_{Surge}	kA	4	According to IEC 61000-4-5
Clearance (pri. - sec.)	d_{Cl}	mm	4	Shortest distance through air
Creepage distance (pri. - sec.)	d_{CP}	mm	4	Shortest path along device body
Comparative tracking index	CTI		>=600	CTI I
Common-mode transient immunity	$CMTI$	V/ns	>100	The criterion for judging the failure is that the output peak is greater than 100 mV and the duration is longer than 1 µs
Application example System voltage RMS		V_{rms}	424	Basic insulation according to UL 60950-1 and UL 62368-1
Application example System voltage DC		V_{dc}	600	Basic insulation according to UL 60950-1 and UL 62368-1

Note: [1)] Done on LEM evaluation board PCB.

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GXS Common Characteristics (T_A = −40°C ... 150°C, U_C = 5 V or 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
DC supply voltage	U_C	V	3	3.3	3.6	U_C = 3.3 V
			4.5	5	5.5	U_C = 5 V
DC current consumption	I_C	mA		25		No load, U_C = 5 V
				21		No load, U_C = 3.3 V
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		2.5		U_C = 5 V, Bipolar&Fixed version, T_A = 25°C
				1.65		U_C = 3.3 V, Bipolar&Fixed version, T_A = 25°C
				0.5		U_C = 5 V, Unipolar&Fixed version, T_A = 25°C
				0.33		U_C = 3.3 V, Unipolar&Fixed version, T_A = 25°C
Load capacitance [1)]	C_L	nF			10	Applicable to U_{out} and U_{ref} pins
Load resistance [1)]	R_L	kΩ	10			Applicable to U_{out} and U_{ref} pins
Primary conductor resistance [1)]	R_P	kΩ		1.2		
Power on time	t_{PO}	ms		1		Recommend to read output after 1ms power-on time, before 1ms internal OTP is loading, T_A = 25°C
Linearity error 0 ... ± I_{PM}	ε_L	%		±0.2		Linearity error 0 ... ± I_{PM}
Internal output series resistance		Ω		5		
Output current	I_{out}	mA		1		Output current that does not impede accuracy of output voltage, applicable to U_{out} and U_{ref} pins
Output short current	I_{short}	mA		±30		Short to U_C and short to GND, T_A = 25°C
Output voltage range @ I_{PM}	U_{out}−U_{ref}	V	0.1		U_C−0.1	T_A = 25°C, C_L = 220 pF, R_L = 10 kΩ, to U_C or GND
Common mode field rejection [1)]	$CMFR$	dB		>40		
Power supply rejection ratio	$PSRR$	dB		−50		Only for F version, DC to 1 kHz, 100 mV pk-pk ripple around U_C = 5 V, I_P = 0 A
Frequency bandwidth (-3 dB)	BW	MHz		1		T_A = 25°C, U_C = 5 V, −3 dB bandwidth, C_L = 220 pF
				2		T_A = 25°C, U_C = 5 V, −3 dB bandwidth, C_L = 220 pF
Noise density	N_d	uArms/√Hz		70		T_A = 25°C, U_C = 5 V, C_L = 220 pF
				110		T_A = 25°C, U_C = 3.3 V, C_L = 220 pF
Rise time [1)]	t_{rise}	µs		1		T_A = 25°C, C_L = 220 pF, U_C = 5 V, 1 MHz version
				1		T_A = 25°C, C_L = 220 pF, U_C = 5 V, 2 MHz version
Delay time [1)]	t_D	ns		400		T_A = 25°C, C_L = 220 pF, U_C = 5 V, 1 MHz version
				200	250	T_A = 25°C, C_L = 220 pF, U_C = 5 V, 2 MHz version

Note: [1)] Guaranteed by design.

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Electrical data GXS AFE 20-50010A, (At T_A = −40°C ... 150°C, U_C = 5 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		8		
Primary current, measuring range	I_{PM}	A	−20		20	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		2.5		
Nominal sensitivity	S_N	mV/A		100		
Sensitivity error [1]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	ε_{SL25}	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = −40°C ... 25°C
Total output error [1]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1] In production, total output error and sensitivity error are measured and calculated at 16 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 50-50010A, (At T_A = −40°C ... 150°C, U_C = 5 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		20		
Primary current, measuring range	I_{PM}	A	−50		50	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		2.5		
Nominal sensitivity	S_N	mV/A		40		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	ε_{SL25}	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = −40°C ... 25°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 40 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 65-50010A, (At T_A = −40°C ... 150°C, U_C = 5 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		26		
Primary current, measuring range	I_{PM}	A	−65		65	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		2.5		
Nominal sensitivity	S_N	mV/A		30.77		
Sensitivity error [1]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	ε_{SL25}	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 2.5 V T_A = −40°C ... 25°C
Total output error [1]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1] In production, total output error and sensitivity error are measured and calculated at 40 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 20-30010A, (At T_A = −40°C ... 150°C, U_C = 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		8		
Primary current, measuring range	I_{PM}	A	−20		20	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		1.65		
Nominal sensitivity	S_N	mV/A		66		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	$\varepsilon_{SL\,25}$	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = −40°C ... 25°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 16 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 40-30010A, (At T_A = −40°C ... 150°C, U_C = 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		16		
Primary current, measuring range	I_{PM}	A	−40		40	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		1.65		
Nominal sensitivity	S_N	mV/A		33		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	$\varepsilon_{SL\,25}$	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = −40°C ... 25°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 32 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 65-30010A, (At T_A = −40°C ... 150°C, U_C = 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		26		
Primary current, measuring range	I_{PM}	A	−65		65	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		1.65		
Nominal sensitivity	S_N	mV/A		20.31		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	ε_{SL25}	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = 25°C ... 150°C
				±10		$U_{out}-U_{I\,ref}$ @ $U_{I\,ref}$ = 1.65 V T_A = −40°C ... 25°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 40 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 30-30110A, (At T_A = −40°C ... 150°C, U_C = 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		12		
Primary current, measuring range	I_{PM}	A	−30		30	
Internal reference voltage @ I_P = 0 A	$U_{I\,ref}$	V		1.65		
Nominal sensitivity	S_N	mV/A		44		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	$\varepsilon_{SL\,25}$	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{out}$/10 T_A = 25°C ... 150°C
				±10		$U_{out}-U_{out}$/10 T_A = 25°C ... 150°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 24 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

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Electrical data GXS AFE 66-31110A, (At T_A = −40°C ... 150°C, U_C = 3.3 V, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		26		
Primary current, measuring range	I_{PM}	A	0		66	
Nominal sensitivity	S_N	mV/A		40		
Sensitivity error [1)]	ε_S	%	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Sum of sensitivity and linearity error @ T_A = 25°C	ε_{SL25}	% of I_{PN}	/	2	/	
Electrical offset voltage	U_{OE}	mV	−5		5	$U_{out}-U_{out}/10$ T_A = 25°C ... 150°C
				±10		$U_{out}-U_{out}/10$ T_A = 25°C ... 150°C
Total output error [1)]	E_{total}	% of I_{PN}	−1.5		1.5	T_A = 25°C ... 150°C
				±2.5		T_A = −40°C ... 25°C
Offset lifetime drift	U_{OE_drif}	mV		±8		T_A = 25°C
Sensitivity error lifetime drift	E_{S_drift}	%		±2		T_A = 25°C
Total output error over lifetime drift	E_{total_drift}	%		±2.1		T_A = 25°C

Note: [1)] In production, total output error and sensitivity error are measured and calculated at 40 A. A single part will not have both the maximum/minimum sensitivity error and maximum/minimum offset voltage. Min/Max value is the mean value +/-3sigma; according to the statistical law, 99.73% of the data is in this range Inside.

Definition of typical, minimum and maximum values

Minimum and maximum values for specified limiting and safety conditions have to be understood as such as well as values shown in “typical” graphs.
On the other hand, measured values are part of a statistical distribution that can be specified by an interval with upper and lower limits and a probability for measured values to lie within this interval.
Unless otherwise stated (e.g. “100%, tested”), the LEM definition for such intervals designated with “min” and “max” is that the probability for values of samples to lie in this interval is 99.73%.
For a normal (Gaussian) distribution, this corresponds to an interval between −3 sigma and +3 sigma. If “typical” values are not obviously mean or average values, those values are defined to delimit intervals with a probability of 68.27%, corresponding to an interval between −sigma and +sigma for a normal distribution.
Typical, maximal and minimal values are determined during the initial characterization of the product.

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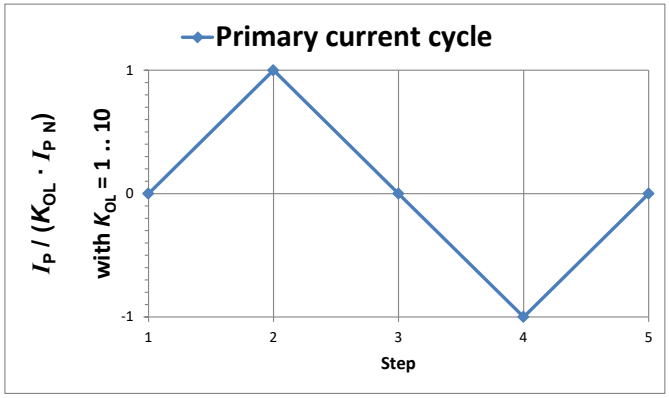
Performance parameters definition



K_{OL}: Overload factor

Figure 1: Current cycle used to measure electrical offset (transducer supplied)

Electrical offset referred to primary

Using the current cycle shown in figure 1, the electrical offset voltage U_{OE} is the residual output referred to primary when the input current is zero.

$$U_{OE} = \frac{U_{P(3)} + U_{P(5)}}{2}$$

The temperature variation U_{OT} of the electrical offset voltage U_{OE} is the variation of the electrical offset from 25°C to the considered temperature.

$$U_{OT}(T) = U_{OE}(T) - U_{OE}(25°C)$$

Delay times

The delay time t_{D10} @ 10%, and the delay time t_{D90} @ 90%, with respect to the primary are shown in the next figure.
Both slightly depend on the primary current di/dt.
They are measured at nominal current.

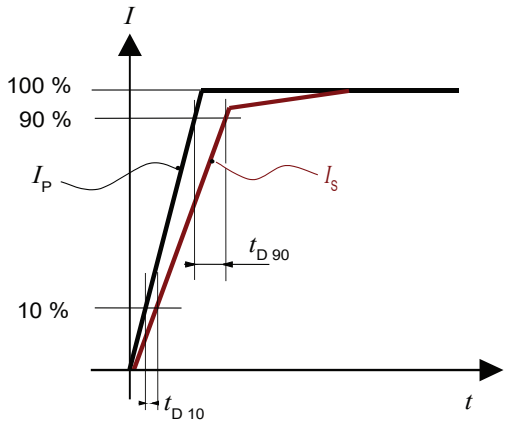


Figure 2: t_{D10} (delay time @ 10%) and t_{D90} (delay time @ 90%)

Total error referred to primary

The total error ε_{tot} is the error at $\pm I_{PN}$, relative to the rated value I_{PN}.
It includes all errors mentioned above

- the electrical offset I_{OE}
- the magnetic offset I_{OM}
- the sensitivity error ε_S
- the linearity error ε_L (to I_{PN}).

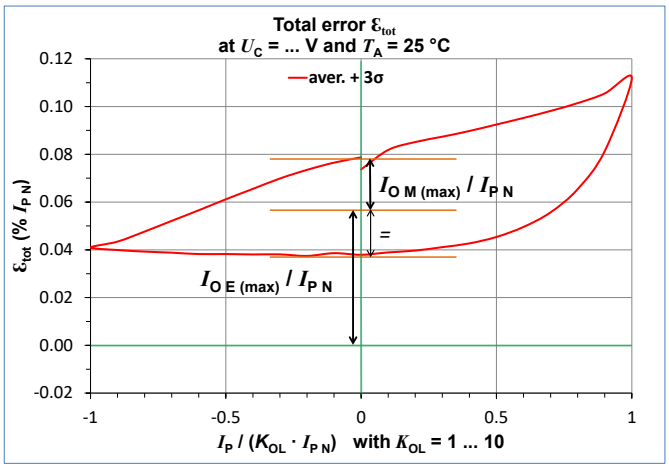


Figure 3: Total error ε_{tot}

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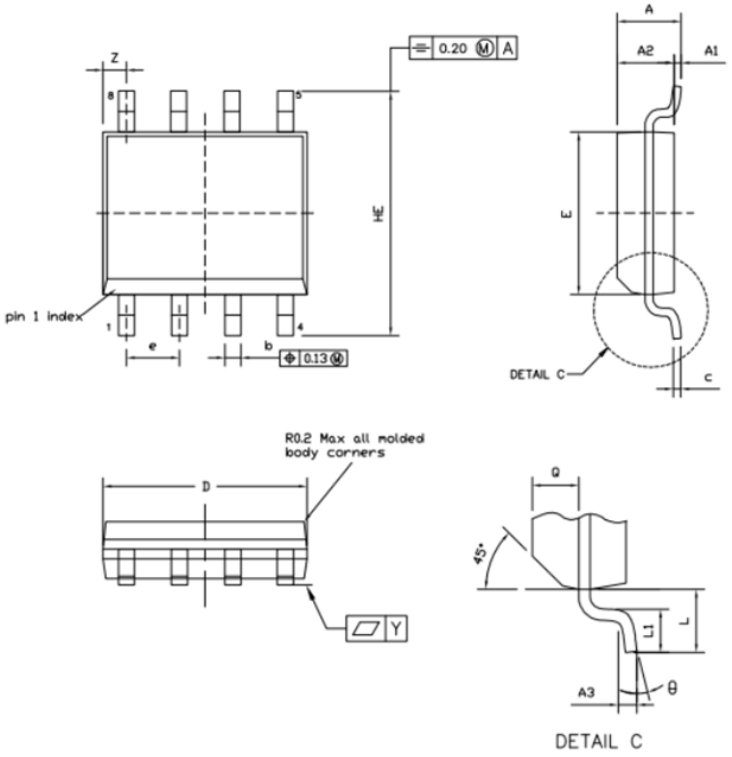
Dimensions (in mm)



✱ CONTROLLING DIMENSION : MM

SYMBOL	MILLIMETER		
	MIN.	NOM.	MAX.
A	---	---	1.75
A1	0.10	---	0.25
A2	1.25	1.35	1.45
b	0.33	0.38	0.49
c	0.19	0.20	0.25
D	4.80	4.90	5.00
E	3.80	3.90	4.00
Q	0.60	0.65	0.70
HE	5.80	6.00	6.20
e	1.27 BSC		
L	1.05 BSC		
L1	0.40	0.64	1.00
Y	---	0.10	---
Z	0.3	0.5	0.7
A3	0.25 BSC		
θ	0°	5°	8°

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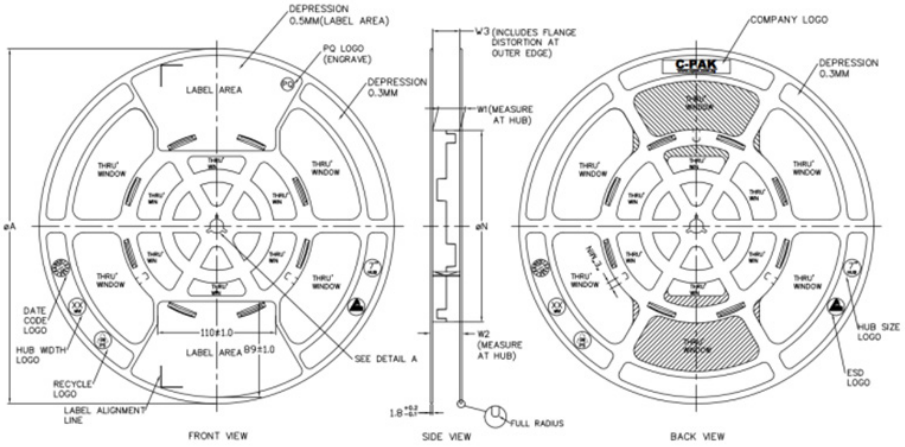
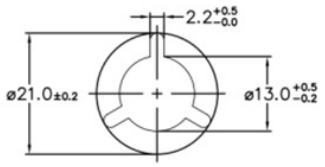
Tape and Reel (in mm)

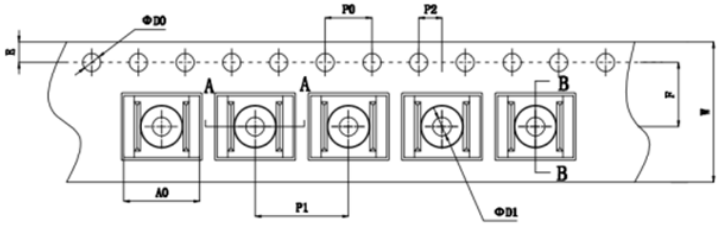


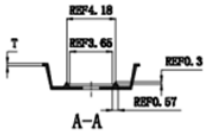


ARBOR HOLE
DETAIL A
SCALE : 3:1

PRODUCT SPECIFICATION						
TAPE WIDTH	øA ±2.0	øN ±2.0	W1	W2 (MAX)	W3	E (MIN)
08MM	330	178	8.4 +1.5 -0.0	14.4	SHALL ACCOMMODATE TAPE WIDTH WITHOUT INTERFERENCE	5.5
12MM	330	178	12.4 +2.0 -0.0	18.4		5.5
16MM	330	178	16.4 +2.0 -0.0	22.4		5.5
24MM	330	178	24.4 +2.0 -0.0	30.4		5.5
32MM	330	178	32.4 +2.5 -0.0	38.4		5.5

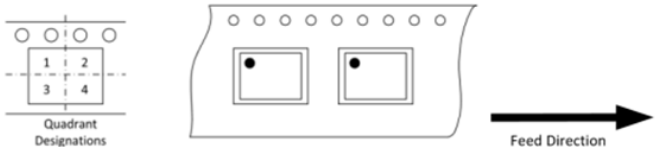
SURFACE RESISTIVITY			
LEGEND	SR RANGE	TYPE	COLOUR
A	BELOW 10^{12}	ANTISTATIC	ALL TYPES
B	10^{6} TO 10^{11}	STATIC DISSIPATIVE	BLACK ONLY
C	10^{3} & BELOW 10^{5}	CONDUCTIVE (GENERIC)	BLACK ONLY
E	10^{6} TO 10^{11}	ANTISTATIC (COATED)	ALL TYPES





Symbol	Spec (mm)
E	1.75±0.10
F	5.5±0.10
P2	2.00±0.10
D0	1.55±0.05
D1	1.6±0.10
P0	4.00±0.10
10P0	40.00±0.20

Symbol	Spec (mm)
W	12.00±0.30
P1	8.00±0.10
A0	6.50±0.10
B0	5.30±0.10
K0	2.20±0.10
K1	1.90±0.10
T	0.30±0.05



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Safety

Caution

If the device is used in a way that is not specified by the manufacturer, the protection provided by the device may be compromised.
Always inspect the electronics unit and connecting cable before using this product and do not use it if damaged.
Mounting assembly shall guarantee the maximum primary conductor temperature, fulfill clearance and creepage distance, minimize electric and magnetic coupling, and unless otherwise specified can be mounted in any orientation.

Caution, risk of electrical shock

This transducer must be used in limited-energy secondary circuits SELV according to IEC 61010-1, in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating specifications.

Use caution during installation and use of this product; certain parts of the module can carry hazardous voltages and high currents (e.g. power supply, primary conductor).
Ignoring this warning can lead to injury and or/or cause serious damage.

This transducer is a build-in device, whose hazardous live parts must be inaccessible after installation.
This transducer must be mounted in a suitable end-enclosure.
Besides make sure to have a distance of minimum 30 mm between the primary terminals of the transducer and other neighboring components.

This transducer is a built-in device, not intended to be cleaned with any product. Nevertheless if the user must implement cleaning or washing process, validation of the cleaning program has to be done by himself.

ESD susceptibility
The product is susceptible to be damaged from an ESD event and the personnel should be grounded when handling it.

Do not dispose of this product as unsorted municipal waste. Contact a qualified recycler for disposal.
Although LEM applies utmost care to facilitate compliance of end products with applicable regulations during LEM product design, use of this part may need additional measures on the application side for compliance with regulations regarding EMC and protection against electric shock. Therefore LEM cannot be held liable for any potential hazards, damages, injuries or loss of life resulting from the use of this product.

Underwriters Laboratory Inc. recognized component

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