

# Product Line Card

Comprehensive portfolio of mixed-signal ICs for innovative applications

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As a specialist for mixed-signal integrated circuits and system-on-chip solutions, iC-Haus has been designing and manufacturing application-specific standard products (ASSPs) and custom ASICs for more than 30 years.

We supply industrial, medical, and automotive applications with innovative, reliable, and FMEA-approved integrated circuits and microsystems.



# Product Line Card

## I/O iCs

I/O Circuits <i>for industrial sensors, control panels, PLC</i>		Package	OTR*
iC-GD	Universal IO-Interface	QFN38-5x7	I
iC-GF	IO-Link Transceiver for IO-Link Slaves	QFN24-4x4	A
iC-JRX	2x4 Bidirectional 24V High-Side Driver with $\mu$ C Interface	PLCC44	C
iC-JX	4x4 Bidirectional 24V High-Side Driver with Load Diagnosis and $\mu$ C Interface	MQFP52	A
iC-MD	48-Bit Quadrature Counter with RS422 Receiver and SPI and BiSS Interface	TSSOP20	E
iC-VRV	2x4 24V Low-Side Driver with I/O Function and $\mu$ C Interface	PLCC44	C

Interface iCs · BiSS® <i>for position measurement, motor feedback and drive systems, safety relevant systems, multiple sensor systems</i>		Package	OTR*
iC-MB3	BiSS Interface Master (1 channel/3 slaves)	TSSOP24	I, A
iC-MB4	BiSS Interface Master (2 channel/8 slaves, RS422 transceiver, dual SPI)	TSSOP24, QFN28-5x5	I, A
iC-MCB	SPI-to-BiSS Slave Bridge with RS-422 Transceiver	QFN16-3x3	E

## Power Management iCs

Power Management iCs <i>for industrial sensors, rotary and linear encoders</i>		Package	OTR*
iC-DC	Programmable Dual 2.5/3.3/5V Buck/Boost SMPS	QFN24-4x4	A, E
iC-JJ	Power Management IC with Autarky Function	MQFP44	A(+)
iC-WD	Switched-Mode Dual 5V Regulator for 8V to 36V	S08, S08-TP, (DFN10-4x4)	I, A
iC-WDA	Switched-Mode Dual 3.3V Regulator for 8V to 36V	DFN10-4x4	I, A
iC-WDB	Switched-Mode 3.3V (200 mA) and 5V Regulators for 8V to 36V	DFN10-4x4	I, A
iC-WDC	Switched-Mode 3.3V and 5V (200 mA) Regulators for 8V to 36V	DFN10-4x4	I, A

## Sensor iCs

Optical <i>for photoelectric sensors, identification systems, scanners, spectroscopy, machine vision systems</i>		Package	OTR*
iC-LA	64x1 Linear Image Sensor with Bidir. Shift and Extendable Data I/O (12.8 mm, 127 dpi)	bare die, COB	I, I
iC-LFH Series	1024/960/640/320x1 High Resolution CMOS Linear Image Sensors (2000 dpi)	optoBGA LFHxC	I, I
iC-LF1401	128x1 Linear Image Sensor with Electronic Shutter Function (8.1 mm, 400 dpi)	optoLGA LF2C, optoBGA LF3C	A(+)
iC-LFL1402	256x1 Gap-Free Linear Image Sensor with Electronic Shutter Function (16.2 mm, 400 dpi)	optoBGA LFL1C	A(+)
iC-LFM	64x1 Linear Image Sensor with Electronic Shutter Function (4 mm, 400 dpi)	optoBGA LFM1C	A(+)
iC-LFS	32x1 Linear Image Sensor with Electronic Shutter Function (2 mm, 400 dpi)	cDFN10-4x4	C
iC-LO	Smart Triangulation Sensor IC	oBGA LO1C	A
iC-LQNP	Pulse and AC Light Sensor with Complementary Outputs	TO18-4 L/F, optoBGA LQ1C, cDFN6	I, E
iC-OC	Dual Integrating Opto Sensor with Shift Register for Chain Connection	bare die, COB	C(+)
iC-OD, iC-ODL	Optical Position-Sensitive Detector (2.6/8.4 mm PSD) with Ambient Light Suppression	oLGA OD4C/ODL2C, cDFN10-4x4	I, E
iC-VP	Photoswitch with Adjustable Sensitivity	TO18-4L, TO18-4F	I, E
Magnetic <i>for linear position sensing, gear tooth sensing, length measurement</i>		Package	OTR*
iC-MJ	Low-Power Hall Sensor	DFN8-3x3	E
iC-MZ	Differential Hall Switch and Gear-Tooth Sensor with Line Driver	DFN10-4x4	E
iC-SM2L	AMR Linear Position Sensor (Pitch: 2 mm)	LGA SM2C	I(+), E
iC-SM5L	AMR Linear Position Sensor (Pitch: 5 mm)	LGA SM2C	I(+), E

\* OTR: Operational Temperature Range C: 0 to +70°C, I: -20 to +85°C, A: -40 to +85°C, E: -40 to +125°C, M: -55 to 125°C, (+): extended

## Linear Functions

Linear Functions		Package	OTR*
<i>for signal conditioners, measurement amplifiers, receivers for 24V control systems, test equipment, analog computation and modulators, demodulators, voltage-controlled amplifiers</i>			
iC-BM	Quad Four-Quadrant Analog Multiplier (MLT04 compatible)	S018W	A
iC-HC	Dual Ultrafast ATE Signal Comparator up to 36V	TSS0P16	E
iC-HO	General Purpose Sensor Interface	QFN32 5x5	I(+)

## Safety Light Curtain iCs

Transmitters		Package	OTR*
<i>for machine safeguarding systems (IEC 61496-1, ESPE), measuring light curtains</i>			
iC-NL	Light-Grid Pulse Driver with Modulation Input	S08	C, I
iC-NT	Light-Grid Pulse Driver for Light Curtains	S08, MSOP8	C, I
iC-NX	8-Channel Light-Grid Pulse Driver	TSS0P16	C, I
iC-NXL	8-Channel Light-Grid Pulse Driver with Modulation Input	TSS0P16	C, I
Receivers		Package	OTR*
<i>for machine safeguarding systems (IEC 61496-1, ESPE), measuring light curtains</i>			
iC-LK	Light-Grid Pulse Receiver with Integrated Photodiode	cQFN16-4x4	C
iC-ME	2-Channel Light-Grid Pulse Receiver	DFN10-4x4	C, I
iC-NE	Light-Grid Pulse Receiver for Light Curtains	S08, MSOP8	C, I
iC-NK	Light-Grid Pulse Receiver	S08	C, I

## Encoder iCs · Silicon for Motion®

Optical Encoder iCs		Package	OTR*
<i>for motion control, drive systems, robotics, optical encoders (incremental, singleturn, multiturn)</i>			
iC-LGC	21-Bit Optical Position Encoder with Serial/Parallel and Sin/Cos Output	BLCC LG5C, oBGA LG21C, COB	I, E
iC-LNB	18-Bit Optical Position Encoder with SPI, Serial/Parallel and FlexCount® Output	optoBGA LNB2C, optoQFN38-7x5	A(+)
iC-LNG	16-Bit Optical Position Encoder with SPI and Serial/Parallel Output	optoBGA LNB2C, optoQFN38-7x5	A(+)
iC-LSB	8-Channel Active Photosensor Array	optoBGA LS2C	I(+)
iC-LSC	12-Channel Active Photosensor Array	optoBGA LS2C, optoQFN32-5x5	I(+)
iC-LSHB	Incremental Photosensor Array	optoBGA LSH2C, optoQFN32-5x5	I(+)
iC-LSHC	3-Channel Sin/Cos Photosensor Array	optoBGA LSH2C, optoQFN32-5x5	I(+)
iC-LTA	6-Channel Incremental Opto Encoder	optoBGA LSH2C, optoQFN32-5x5	A(+)
iC-LV	5-Bit Optical Encoder with Cascadable Serial Interface (SSI)	BLCC LV4C, COB	I, E
iC-OF	3-Bit Optical Encoder	BLCC OF3C, optoBGA OF4C	I, E
iC-OG	8-Bit Differential Scanning Optical Encoder with LED Control	BLCC OGC	I, E
iC-PD3948	5-Channel Phased Array Sine Encoder (Ø 39 mm, 2048 PPR)	optoBGA LSH2C, optoQFN32-5x5	A(+)
iC-PN Series	Phased Array Nonius Encoder IC Series (Ø 26, Ø 33, Ø 39 mm)	optoQFN32-5x5	A(+)
iC-PNH3348	EncoderBlue® Phased Array Nonius Encoder	optoQFN32-5x5LSH2C	A(+)
iC-PR Series	EncoderBlue® 3-Ch. Reflective Optical Encoder IC Series	optoQFN24-4x4	A(+)
iC-PT H-Series	6-Ch. Phased Array Opto Encoder IC Series (Ø 26, Ø 33, Ø 39 mm); EncoderBlue®	optoQFN32-5x5	A(+)
iC-PT Series	6-Ch. Phased Array Opto Encoder IC Series (Ø 33 mm)	optoQFN32-5x5	A(+)
iC-PX Series	EncoderBlue® 2-Ch. Reflective Optical Encoder IC Series	optoDFN8-3x3	A(+)
iC-WG	14-Bit Differential Scanning Optical Encoder iC	BLCC WGC	I(+)

# Product Line Card

<b>Magnetic Encoder iCs</b>		<b>Package</b>	<b>OTR*</b>
<i>for linear and angular encoders, position measurement systems, robotics, motion and vehicle control</i>			
iC-MA	8-Bit Angular Hall Encoder, Cascadable	DFN10-4x4	E
iC-MA3	Angular Hall Sensor with Sin / Cos Output, Cascadable	QFN16-4x4	E
iC-MH, iC-MH8	12-Bit Angular Hall Encoder	QFN28-5x5	E
iC-MH16	12-Bit Angular Hall Encoder, FlexCount®	QFN28-5x5	E
iC-MHA	Angular Hall Encoder with Sin / Cos Outputs	QFN28-5x5	E
iC-MHL200	12-Bit Linear / Rotary Position Hall Encoder	TSSOP20	E
iC-MHM	14-Bit Absolute Angle Hall Encoder	QFN28-5x5	E
iC-ML	8-Bit Linear Position Hall Encoder, Cascadable	TSSOP20	E
iC-MP	8-Bit Hall Encoder iC with Ratiometric Output	DFN10-4x4	E
iC-MU	Magnetic Off-Axis Absolute Position Encoder - pole width 1.28 mm	DFN16-5x5	A(+)
iC-MU150	Magnetic Off-Axis Absolute Position Encoder - pole width 1.50 mm	DFN16-5x5	A(+)
iC-MV	8-Bit Hall Encoder with Cascadable Serial Interface	QFN16-3x3	E
iC-PV	Battery-Buffered Hall Multiturn Encoder	QFN16-3x3	E
iC-PVL	Linear / Off-Axis Battery-Buffered Hall Multiturn Encoder	QFN16-4x4	E
iC-TW11	10-Bit Ultra Low Power Magnetic Absolute Rotary Encoder	QFN16-4x4	E

<b>Interpolators</b>		<b>Package</b>	<b>OTR*</b>
<i>for angle sensors, rotary encoders, linear scales, digital gauges, PLC/IPC interface boards, servo controls</i>			
iC-MG	8-Bit Sin / Cos Interpolation iC with RS422 Driver	TSSOP20	I(+), E
iC-MN	3-Channel, Simultaneous Sampling 13-Bit Sin / Cos Interpolation IC with Nonius Calculation	QFN48-7x7	A(+)
iC-MNF	26-Bit Nonius Encoder with 3-Ch. Sampling 14-bit Sin/D Interpolation	QFN48-7x7	E
iC-MQ	Programmable 9-Bit Sin / Cos Interpolation IC with Fail-Safe RS422 Driver	TSSOP20	I(+), E
iC-MQF, iC-PI	Programmable 12-Bit Sin/Cos Interpolation iC with RS422 Driver	TSSOP20	A(+)
iC-MR3	13-Bit S&H Sin / Cos Interpolator with 2.5V/5V Controller Interfaces	QFN48-7x7	E
iC-NG	8-Bit Sine-to-Digital Converter Processor with Waveform Adaptation	SO28, SSOP28	I, E
iC-NQC	13-Bit Signal Conditioning Interpolator with BiSS C Interface	TSSOP20	I, E
iC-NQI	13-Bit Signal Conditioning Interpolator with 2-Wire Interface	TSSOP20	I, E
iC-NV, iC-NVH	6-Bit Sin / Cos Flash Converter with Pin-Selectable Interpolation to x16 (H: half-cycle index)	TSSOP20	I, E
iC-TW2	Programmable 8-Bit Sin / Cos Interpolation IC with EEPROM	QFN24-4x4	E
iC-TW28	10-Bit Low Latency Sin / Cos Interpolator with Auto-Calib. and Line Driver	QFN32-5x5	E
iC-TW8	16-Bit Sin / Cos Interpolator with Automatic Calibration	QFN48-7x7	E

<b>Signal Conditioning and Monitoring</b>		<b>Package</b>	<b>OTR*</b>
<i>for linear encoders, incremental encoders, optical position sensors, magnetic position sensors</i>			
iC-MSA	Sin / Cos Sensor Signal Conditioner with AGC and 1 Vpp Line Driver	TSSOP20-TP	A(+)
iC-MSB SAFETY	Sin / Cos Sensor Signal Conditioner with Fail-Safe 1 Vpp Line Driver	TSSOP20, TSSOP20-TP	I(+), A(+)
iC-MSB2	Sin / Cos Sensor Signal Conditioner / Multiplexer with Fail-Safe 1 Vpp Line Driver	TSSOP20	I(+)
iC-PE Series	XMR Sensor Multiplexer-Amplifier	QFN16-3x3	E
iC-RC1000	Sin / Cos Signal Safety Monitor IC	MSOP10-3x3	A(+)
iC-TW3	Automatic Signal Conditioner w. LUT Temp. Comp. and 1 Vpp (100 Ohm) / 2Vpp Outputs	QFN32-5x5	E
iC-WT	3-Channel Photodiode Amplifier-Comparator with LED Controller	SO16N	I(+)

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## Laser Diode and LED Drivers

Laser Diode and LED Drivers		Package	OTR*
<i>for industrial sensors, barcode scanners, laser leveling, laser printers, copiers, laser pointers</i>			
iC-HB	Triple 155 MHz Laser Switch with LVDS Inputs	QFN24-4x4	I
iC-HG	200 MHz Laser Switch for up to 9A (pulsed)	QFN28-5x5	I
iC-HGP	200 MHz High-Side Laser Switch for up to 9A (pulsed)	QFN32-5x5	I
iC-HK, iC-HKB	155 MHz Dual Channel Spike-Free Laser Switch	SO8N-TP, MSOP8-TP	I
iC-HT	Dual CW N/M-Type Laser Diode Driver with SPI/I2C Controller for up to 1.5A	QFN28-5x5	A
iC-HTG	Power CW Laser Diode Driver	QFN24-4x4	A
iC-HTP	Dual CW P-Type Laser Diode Driver with SPI/I2C Controller for up to 1.5A	QFN28-5x5	A
iC-NZ	Fail-Safe Laser Diode Driver for CW and Pulse Operation up to 155 MHz	QFN28-5x5	I
iC-NZN, iC-NZP	N-Type/P-Type Laser Diode Driver with APC and ACC	QFN24-4x4	I(+)
iC-WJ, iC-WJZ	Laser Diode Driver for CW and Pulse Operation up to 300 kHz	SO8, MSOP8	I
iC-WJB	Laser Diode Driver for Battery Supplies of 2.7 to 6V	SO8, MSOP8	I
iC-WK, iC-WKL	Universal Laser Saver® for CW Operation of 2.4 to 6V	SO8, MSOP8	A
iC-WKM	CW Laser Diode Driver, Optimized for (Blue) M-Type Laser Diodes	SO8N-TP, DFN10-4x4	A
iC-WKN	CW Laser Diode Driver, Optimized for N-Type Laser Diodes	SO8N-TP, DFN10-4x4	A
iC-WKP	CW Laser Diode Driver, Optimized for P-Type Laser Diodes	SO8N-TP, DFN10-4x4	A

## Driver iCs

Relay / Solenoid Drivers		Package	OTR*
<i>for relays, magnetic valves, photovoltaic modules</i>			
iC-DY6818	32-Bit Serial Input Latched Push/Pull Driver	PLCC44	E
iC-GE	PWM Relay/Solenoid Driver for a Wide Operating Voltage Range (1A)	QFN16-4x4	A
iC-GE100	PWM Relay/Solenoid Driver (100 mA)	DFN8-3x3	A
iC-JE	Power-Saving PWM Relay/Solenoid Driver	SO8	I

24V and 5V Line Drivers		Package	OTR*
<i>for factory automation, industrial controls, position sensors</i>			
iC-DL	3-Channel Differential Line Driver with Integrated Impedance Adaptation	QFN28-5x5	I, E
iC-HD2	Quad Differential Line Driver, Pin-Compatible with xx2068	TSSOP20, TSSOP20-TP	I, E
iC-HD7	Quad Differential Line Driver, Pin-Compatible with xx7272 and 26xx31	SO16N	I, E
iC-HE	Triple Differential Line Driver	SO14N	I, E
iC-HF	6-Channel Encoder Link, RS422 Driver/Receiver	QFN32-5x5	E
iC-HX	3-Channel Differential Line Driver with Reduced Power Dissipation	QFN28-5x5	I, E
iC-VX	3-Channel Differential Line Driver with Complementary 24V Outputs	SO16W, TSSOP20	I(+)
iC-WE	3-Channel 75 Ohm Line Driver for RS422 and 24V Applications	SO16W, SO20W, TSSOP20-TP	I, E

Output Stages		Package	OTR*
<i>for proximity sensors, light barriers, relays, microcontroller applications</i>			
iC-DN	200 mA Low-Side Switch for 4V to 36V with Input/Output Decoupling	SOT23-6L, SC59-3L	E
iC-DP	200 mA High-Side Switch and Level Shift for 4V to 36V with Input/Output Decoupling	SOT23-6L, SC59-3L	E
iC-DX, iC-DX3	Digital Sensor Output Driver (150 mA)	DFN6-2x2	E(+)
iC-DXC, iC-DXC3	Digital Sensor Output Driver (200 mA) with IO-Link Feedback Channel	DFN8-3x3	E(+)
iC-MFL	8-Fold Fail-Safe Logic N-FET Driver	QFN24-4x4	E
iC-MFN, iC-MFP	8-Fold Fail-Safe N-FET/P-FET Driver with a Level Shift of up to 40V	QFN24-4x4	E

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## LEDs

LEDs <i>for optical encoders</i>		Package	OTR*
iC-TL46	Blue 460 nm LED with Lens for High-Resolution Optical Encoders	T046-2L1, BLCC SD1C	A(+)
iC-TL6	Masked Point Source 640 nm LED	BLCC2 1206	E
iC-TL85	Infrared 850 nm LED with Lens or Flat Window for High-Resolution Optical Encoders	T046-2L1, T046-2F1	E
iC-SD85	Infrared 850 nm LED with Lens or Flat Glass for High-Resolution Optical Encoders	BLCC SD1C, oLGA SD2C, BLCC SD3C	E
iC-SG85	Infrared 850 nm LED with Plastic Lens for High-Quality Large Area Illumination in High-Resolution Optical Encoders	BLCC SG1C, BLCC SG4C	E
iC-SN85	Infrared 850 nm LED with Plastic Lens for High-Quality Large Area Illumination	BLCC SN1C, BLCC SN2C	E

## Tools

### Adapters and Instruments

MB3U	BiSS (SSI)-to-PC Adapter (USB)
MB3U-I2C	BiSS (SSI) and I2C-to-PC Adapter (USB)
MB4U	High-Performance BiSS (SSI)-to-PC USB Adapter
MB5U	High Performance Galvanic Isolated BiSS (SSI)-to-PC USB Adapter
SinCosYzer 2	Sine Encoder Signal Acquisition with Graphical Analysis

### Laser Tools

iC149	Programmable ns-Pulse Generator
iC212	High-Speed Photoreceiver with Si-PIN Photodiode
iC212NIR	High-Speed Photoreceiver for Near Infrared
iC213	Programmable Oscillator Module (40 kHz to 1.4 GHz)
iC227	Dual 11 GHz Sampling Oscilloscope

### Encoder Evaluation Boards

MU1C	Off-Axis Motor Feedback Module
PV1M1	Evaluation Board iC-PV/iC-MHM

Let iC-Haus act as your ASIC design and production partner...

For more details on how iC-Haus can help you realize the full potential of your projects – on time, on budget, and with every assurance of maximum quality, reliability, and performance – feel free to contact us by phone under +49 6135 92920.

You can also send us an Email request to [info@ichaus.de](mailto:info@ichaus.de) or visit us online on [www.ichaus.com](http://www.ichaus.com).

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