

# 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 35 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

for industrial sensors, control panels, PLC

### Package

iC-GD	Universal IO-Interface	QFN38-5×7
iC-GF	IO-Link Transceiver for IO-Link Slaves	QFN24-4×4
iC-GFP	IO-Link Slave Transceiver	QFN24-4×4
iC-JRX	2x4 Bidirectional 24V High-Side Driver with $\mu$ C Interface	PLCC44
iC-JX	4x4 Bidirectional 24V High-Side Driver with Load Diagnosis and $\mu$ C Interface	MQFP52
iC-MD	48-Bit Quadrature Counter with RS422 Receiver and SPI and BiSS Interface	TSSOP20

### Interface iCs · BiSS®

for position measurement, motor feedback and drive systems, safety relevant systems, multiple sensor systems

### Package

iC-MB4	BiSS Interface Master (2 channel/8 slaves, RS422 transceiver, dual SPI)	TSSOP24, QFN28-5×5
iC-MCB	SPI-to-BiSS Slave Bridge with RS-422 Transceiver	QFN16-3×3
iC-MCW	BiSS Watchdog for RS422 with SPI	QFN24-4×4

## Power Management iCs

### Power Management iCs

for industrial sensors, rotary and linear encoders

### Package

iC-DC	Programmable Dual 2.5/3.3/5V Buck/Boost SMPS	QFN24-4×4
iC-WD	Switched-Mode Dual 5V Regulator for 8V to 36V	SO8, SO8-TP, (DFN10-4×4)
iC-WDA	Switched-Mode Dual 3.3V Regulator for 8V to 36V	DFN10-4×4
iC-WDB	Switched-Mode 3.3V (200mA) and 5V Regulators for 8V to 36V	DFN10-4×4
iC-WDC	Switched-Mode 3.3V and 5V (200mA) Regulators for 8V to 36V	DFN10-4×4

## Sensor iCs

### Optical

for photoelectric sensors, identification systems, scanners, spectroscopy, machine vision systems

### Package

iC-LA	64×1 Linear Image Sensor with Bidir. Shift and Extendable Data I/O (12.8mm, 127 dpi)	bare die, COB
iC-LFH Series	1024/960/640/320×1 High Resolution CMOS Linear Image Sensors (2000 dpi)	optoBGA LFHxC
iC-LF1401	128×1 Linear Image Sensor with Electronic Shutter Function (8.1 mm, 400 dpi)	optoLGA LF2C, optoBGA LF3C
iC-LFL1402	256×1 Gap-Free Linear Image Sensor with Electronic Shutter Function (16.2mm, 400 dpi)	optoBGA LFL1C
iC-LFM	64×1 Linear Image Sensor with Electronic Shutter Function (4 mm, 400 dpi)	optoBGA LFM1C
iC-LFS	32×1 Linear Image Sensor with Electronic Shutter Function (2 mm, 400 dpi)	cDFN10-4×4
iC-LO	Smart Triangulation Sensor IC	oBGA LO1C
iC-LQNP	Pulse and AC Light Sensor with Complementary Outputs	TO18-4L/F, oBGA LQ1C, cDFN6
iC-OC	Dual Integrating Opto Sensor with Shift Register for Chain Connection	bare die, COB
iC-OD, iC-ODL	Optical Position-Sensitive Detector (2.6/8.4 mm PSD) with Ambient Light Suppression	oLGA OD4C/ODL2C, cDFN10-4×4

### Magnetic

for linear position sensing, gear tooth sensing, length measurement

### Package

iC-MJ	Low-Power Hall Sensor	DFN8-3×3
iC-MZ	Differential Hall Switch and Gear-Tooth Sensor with Line Driver	DFN10-4×4
iC-SM2L	AMR Linear Position Sensor (Pitch: 2 mm)	LGA SM2C
iC-SM5L	AMR Linear Position Sensor (Pitch: 5 mm)	LGA SM2C

## Linear Functions

### Linear Functions Package

for signal conditioners, measurement amplifiers, receivers for 24 V control systems, test equipment, analog computation and modulators, demodulators, voltage-controlled amplifiers

iC-BM	Quad Four-Quadrant Analog Multiplier (MLT04 compatible)	SO18W
iC-HO	General Purpose Sensor Interface	QFN32 5×5

## Safety Light Curtain iCs

### Transmitters

for machine safeguarding systems (IEC 61496-1, ESPE), measuring light curtains

### Package

iC-NL	Light-Grid Pulse Driver with Modulation Input	SO8
iC-NT	Light-Grid Pulse Driver for Light Curtains	SO8, MSOP8
iC-NX	8-Channel Light-Grid Pulse Driver	TSSOP16
iC-NXL	8-Channel Light-Grid Pulse Driver with Modulation Input	TSSOP16

### Receivers

for machine safeguarding systems (IEC 61496-1, ESPE), measuring light curtains

### Package

iC-LK	Light-Grid Pulse Receiver with Integrated Photodiode	cQFN16-4×4
iC-ME	2-Channel Light-Grid Pulse Receiver	DFN10-4×4
iC-NE	Light-Grid Pulse Receiver for Light Curtains	SO8, MSOP8
iC-NK	Light-Grid Pulse Receiver	SO8

## Encoder iCs · Silicon for Motion®

### Optical Encoder iCs

for motion control, drive systems, robotics, optical encoders (incremental, singleturn, multiturn)

### Package

iC-LGC	21-Bit Optical Position Encoder with Serial/Parallel and Sin/Cos Output	BLCC LG5C, oBGA LG21C, COB
iC-LNB	18-Bit Optical Position Encoder with SPI, Serial/Parallel and FlexCount® Output	optoBGA LNB2C, optoQFN38-7×5
iC-LNG	16-Bit Optical Position Encoder with SPI and Serial/Parallel Output	optoBGA LNB2C, optoQFN38-7×5
iC-LSB	8-Channel Active Photosensor Array	optoBGA LS2C
iC-LSC	12-Channel Active Photosensor Array	optoBGA LS2C, optoQFN32-5×5
iC-LSHB	Incremental Photosensor Array	optoBGA LSH2C, optoQFN32-5×5
iC-LSHC	3-Channel Sin/Cos Photosensor Array	optoBGA LSH2C, optoQFN32-5×5
iC-LTA	6-Channel Incremental Opto Encoder	optoBGA LSH2C, optoQFN32-5×5
iC-LV	5-Bit Optical Encoder with Cascadable Serial Interface (SSI)	BLCC LV4C, COB
iC-OF	3-Bit Optical Encoder	BLCC OF3C, optoBGA OF4C
iC-OG	8-Bit Differential Scanning Optical Encoder with LED Control	BLCC OGC
iC-PD3948	5-Channel Phased Array Sine Encoder (Ø 39 mm, 2048 PPR)	optoBGA LSH2C, optoQFN32-5×5
iC-PG	Miniature Reflective Optical Absolute Encoder	oDFN8-3×3
iC-PN, iC-PNH Series	Phased Array Nonius Encoder IC Series (Ø 26, Ø 33, Ø 39 mm)	optoBGA LSH2C, optoQFN32-5×5
iC-PNH3348	EncoderBlue® Phased Array Nonius Encoder	optoQFN32-5×5
iC-PR Series	EncoderBlue® 3-Ch. Reflective Optical Encoder IC Series	optoQFN24-4×4
iC-PT H-Series	6-Ch. Phased Array Opto Encoder IC Series (Ø 26, Ø 33, Ø 39 mm); EncoderBlue®	optoQFN32-5×5
iC-PT Series	6-Ch. Phased Array Opto Encoder IC Series (Ø 33 mm)	optoQFN32-5×5
iC-PX Series	EncoderBlue® 2-Ch. Reflective Optical Encoder IC Series	optoDFN8-3×3
iC-PZ Series	High-Resolution Optical Reflective Absolute Encoder	oQFN32-5×5
iC-RZ Series	Optical Twin-Scan Encoder IC Series with Safety Channel (Ø 26, Ø 42 mm)	oQFN38-7×5
iC-WG	14-Bit Differential Scanning Optical Encoder iC	BLCC WGC

# Product Line Card

## Magnetic Encoder iCs

for linear and angular encoders, position measurement systems, robotics, motion and vehicle control

## Package

iC-MA	8-Bit Angular Hall Encoder, Cascadable	DFN10-4×4
iC-MA3	Angular Hall Sensor with Sin/Cos Output, Cascadable	QFN16-4×4
iC-MH, iC-MH8	12-Bit Angular Hall Encoder	QFN28-5×5
iC-MH16	12-Bit Angular Hall Encoder, FlexCount®	QFN28-5×5
iC-MHA	Angular Hall Encoder with Sin/Cos Outputs	QFN28-5×5
iC-MHL Series	12-Bit Linear/Rotary Position Hall Encoder – pole width 1.00, 2.00 mm	TSSOP20 (QFN32-5×5)
iC-MHM	14-Bit Absolute Angle Hall Encoder	QFN28-5×5
iC-ML	8-Bit Linear Position Hall Encoder, Cascadable – pole width 2.56 mm	TSSOP20
iC-MP	8-Bit Hall Encoder iC with Ratiometric Output	DFN10-4×4
iC-MU Series	Magnetic Off-Axis Absolute Position Encoder – pole width 1.28, 1.50, 2.00 mm	DFN16-5×5, QFN48-7×7
iC-MV	8-Bit Hall Encoder with Cascadable Serial Interface	QFN16-3×3
iC-PV	Battery-Buffered Hall Multiturn Encoder	QFN16-3×3
iC-PVL	Linear Off/On-Axis Battery-Buffered Hall Multiturn Encoder	QFN16-4×4
iC-TW11	10-Bit Ultra Low Power Magnetic Absolute Rotary Encoder	QFN16-4×4

## Interpolators

for angle sensors, rotary encoders, linear scales, digital gauges, PLC/IPC interface boards, servo controls

## Package

iC-MG	8-Bit Sin/Cos Interpolation iC with RS422 Driver	TSSOP20
iC-MN	3-Channel, Simultaneous Sampling 13-Bit Sin/Cos Interpolation IC with Nonius Calculation	QFN48-7×7
iC-MNF	26-Bit Nonius Encoder with 3-Ch. Sampling 14-bit Sin/D Interpolation	QFN48-7×7
iC-MQ	Programmable 9-Bit Sin/Cos Interpolation IC with Fail-Safe RS422 Driver	TSSOP20
iC-MR3	13-Bit S&H Sin/Cos Interpolator with 2.5V/5V Controller Interfaces	QFN48-7×7
iC-NG	8-Bit Sine-to-Digital Converter Processor with Waveform Adaptation	SO28, SSOP28
iC-NQC	13-Bit Signal Conditioning Interpolator with BiSS C Interface	TSSOP20
iC-NQI	13-Bit Signal Conditioning Interpolator with 2-Wire Interface	TSSOP20
iC-NV, iC-NVH	6-Bit Sin/Cos Flash Converter with Pin-Selectable Interpolation to ×16 (H: half-cycle index)	TSSOP20
iC-PI	Programmable 12-Bit Sin/Cos Interpolation IC with RS422 Driver	TSSOP20
iC-TW2	Programmable 8-Bit Sin/Cos Interpolation IC with EEPROM	QFN24-4×4
iC-TW8	16-Bit Sin/Cos Interpolator with Automatic Calibration	QFN48-7×7
iC-TW28	10-Bit Low Latency Sin/Cos Interpolator with Auto-Calib. and Line Driver	QFN32-5×5
iC-TW29	26-Bit Encoder Processor with Interpolator and BiSS Interface	QFN32-5×5

## Signal Conditioning and Monitoring

for linear encoders, incremental encoders, optical position sensors, magnetic position sensors

## Package

iC-MSA	Sin/Cos Sensor Signal Conditioner with AGC and 1 Vpp Line Driver	TSSOP20-TP
iC-MSB SAFETY	Sin/Cos Sensor Signal Conditioner with Fail-Safe 1 Vpp Line Driver	TSSOP20, TSSOP20-TP
iC-MSB2	Sin/Cos Sensor Signal Conditioner/Multiplexer with Fail-Safe 1 Vpp Line Driver	TSSOP20
iC-MSC	Sin/Cos Sensor Signal Conditioner with Fail-Safe 1 Vpp Line Driver	TSSOP20-TP, QFN32-5×5
iC-PE Series	XMR Sensor Multiplexer-Amplifier	QFN16-3×3
iC-RC1000	Sin/Cos Signal Safety Monitor IC	MSOP10-3×3
iC-TW3	Automatic Signal Conditioner w. LUT Temp. Comp. and 1 Vpp (100 Ohm)/2Vpp Outputs	QFN32-5×5
iC-WT	3-Channel Photodiode Amplifier-Comparator with LED Controller	SO16N

# Product Line Card

## Laser Diode and LED Drivers

Laser Diode and LED Drivers		Package
for industrial sensors, barcode scanners, laser leveling, laser printers, copiers, laser pointers		
iC-HB	Triple 155MHz Laser Switch with LVDS Inputs	QFN24-4×4
iC-HG	200MHz Laser Switch for up to 9A (pulsed)	QFN28-5×5
iC-HG30	250 MHz Laser Switch for up to 30 A (pulsed)	QFN28-5×5
iC-HGP	200MHz High-Side Laser Switch for up to 9A (pulsed)	QFN32-5×5
iC-HK, iC-HKB	155MHz Dual Channel Spike-Free Laser Switch	SO8N-TP, MSOP8-TP
iC-HN Series	Short Pulse 1.4/2.8A Laser Driver	DFN8-3×3
iC-HS Series	Ultra-Short-Pulse Laser Driver for 100 ps up to 5 ns with 1 ps Resolution	QFN16-3×3, QFN24-4×4
iC-HT	Dual CW N/M-Type Laser Diode Driver with SPI/I2C Controller for up to 1.5A	QFN28-5×5
iC-HTG	Power CW Laser Diode Driver	QFN24-4×4
iC-HTP	Dual CW P-Type Laser Diode Driver with SPI/I2C Controller for up to 1.5A	QFN28-5×5
iC-NZ	Fail-Safe Laser Diode Driver for CW and Pulse Operation up to 155MHz	QFN28-5×5
iC-NZN, iC-NZP	N-Type/P-Type Laser Diode Driver with APC and ACC	QFN24-4×4
iC-WJ, iC-WJZ	Laser Diode Driver for CW and Pulse Operation up to 300kHz	SO8, MSOP8
iC-WJB	Laser Diode Driver for Battery Supplies of 2.7 to 6V	SO8, MSOP8
iC-WK, iC-WKL	Universal Laser Saver® for CW Operation of 2.4 to 6V	SO8, MSOP8
iC-WKM	CW Laser Diode Driver, Optimized for (Blue) M-Type Laser Diodes	SO8N-TP, DFN10-4×4
iC-WKN	CW Laser Diode Driver, Optimized for N-Type Laser Diodes	SO8N-TP, DFN10-4×4
iC-WKP	CW Laser Diode Driver, Optimized for P-Type Laser Diodes	SO8N-TP, DFN10-4×4

## Driver iCs

Relay / Solenoid Drivers		Package
for relays, magnetic valves, photovoltaic modules		
iC-GE	PWM Relay/Solenoid Driver for a Wide Operating Voltage Range (1A)	QFN16-4×4
iC-GE100	PWM Relay/Solenoid Driver (100mA)	DFN8-3×3
iC-JE	Power-Saving PWM Relay/Solenoid Driver	SO8

## 24V and 5V Line Drivers

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

## Output Stages

Output Stages		Package
for proximity sensors, light barriers, relays, microcontroller applications		
iC-DN	200mA Low-Side Switch for 4V to 36V with Input/Output Decoupling	SOT23-6L, UDFN6-1.8×2
iC-DP	200mA High-Side Switch and Level Shift for 4V to 36V with Input/Output Decoupling	SOT23-6L, UDFN6-1.8×2
iC-DX, iC-DX3	Digital Sensor Output Driver (150mA)	DFN6-2×2
iC-DXC, iC-DXC3	Digital Sensor Output Driver (200mA) with IO-Link Feedback Channel	DFN8-3×3
iC-MFL	8-Fold Fail-Safe Logic N-FET Driver	QFN24-4×4

## LEDs

LEDs		Package
for optical encoders		
iC-TL46	Blue 460 nm LED with Lens for High-Resolution Optical Encoders	TO46-2L1, BLCC SD1C
iC-TL6	Masked Point Source 640 nm LED	BLCC2 1206
iC-TL85	Infrared 850 nm LED with Lens or Flat Window for High-Resolution Optical Encoders	TO46-2L1, TO46-2F1
iC-SD85	Infrared 850 nm LED with Lens or Flat Glass for High-Resolution Optical Encoders	BLCC SD1C, oLGA SD2C, BLCC SD3C
iC-SG85	Infrared 850 nm LED with Plastic Lens for High-Quality Large Area Illumination in High-Resolution Optical Encoders	BLCC SG1C, BLCC SG4C
iC-SN85	Infrared 850 nm LED with Plastic Lens for High-Quality Large Area Illumination	BLCC SN1C, BLCC SN2C

## 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
iC245	Programmable Pulse-Width Modifier (250 ps to 10 ns in steps of 40 ps)

### Encoder Evaluation Boards

MHM4M	On-Axis Battery-Buffered Hall Multiturn Encoder Evaluation Board
MU1C	Off-Axis Motor Feedback Module
MU3C	Off-Axis Battery-Buffered Hall Multiturn Encoder Evaluation Board
PV1M	On-Axis Battery-Buffered Hall Multiturn Encoder Evaluation Board
PVL3M	iC-PVL Evaluation Board with On-Axis AMR Angle Sensor

### 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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