

Product overview

erni.com



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
E-08918 Badalona
(Spain)

Tel.: (+34) 902 450 160
Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
C/ Sagasta, 8, 1ª planta
E-28004 Madrid
(Spain)

PORTUGAL
portugal@ermec.com
BILBAO
bilbao@ermec.com

Your technology partner for connectors and systems technology

In the areas of connectors, pressfit technology, SMT & THT soldering and cable assembly, ERNI is having high competence of all processes in R&D, design, prototyping, production and testing technology. We share this know-how with our customers. According to your wishes as system partner, service provider or as supplier.

ERNI is a globally active company with offices in Europe, North America and Asia.

Please find additional information at www.erni.com

Product Certifications

UL Underwriter Laboratories Inc. – File No. E 84703
Bellcore Several approvals for connector

Quality Management Certifications

DIN ISO 9001:2008 TÜV EN Registration No. 01 100 0102245
ISO / TS 16949:2009 TÜV EN Registration No. 01 111 0102245

Environmental Management Certifications

DIN ISO 14001:2004 TÜV EN Registration No. 01 104 0102245



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
E-08918 Badalona
(Spain)

Tel.: (+34) 902 450 160
Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
C/ Sagasta, 8, 1ª planta
E-28004 Madrid
(Spain)

PORTUGAL
portugal@ermec.com
BILBAO
bilbao@ermec.com

Product an service overview

Connectors and Housings

MicroStac	3	LPV	11
MicroCon	3	Power Taps	12
MicroSpeed	4	Power Elements	12
MiniBridge	4	D-Sub	13
SMC	5	Modular Jacks	14
ERmet 2 mm HM	5	M8/ M12	14
ERmet ZD	6	ERbic	15
ERmet ZDplus	7	KSG D-Sub	16
ERmet ZDHD	7	KSG DIN	16
ERmet zeroXT	8	Enclosures IDG-A	17
Pre-Alignment Modules	8	Enclosures IDG-B	17
MaxiBridge	9	Miniature Enclosures LDG-A	18
DIN 41612	9	Miniature Enclosures LDG-S	18
Pin Headers and Sockets	10		
IDC PCB Terminals	10		

1.

Backplanes and Complete Systems

Design and Development	20	CompactPCI Backplanes	22
Prototype-, Small Batch- and Series Production	20	VME Backplanes	22
Subrack Production	21	AdvancedTCA Backplanes	22
WHITEspeed	21	Tools and Presses	23

2.

SMT and THT Soldering

Electronics Development	25
PCB Assembly	25
Electronic Packaging	26
Testing Technology and SMD Rework Service	26

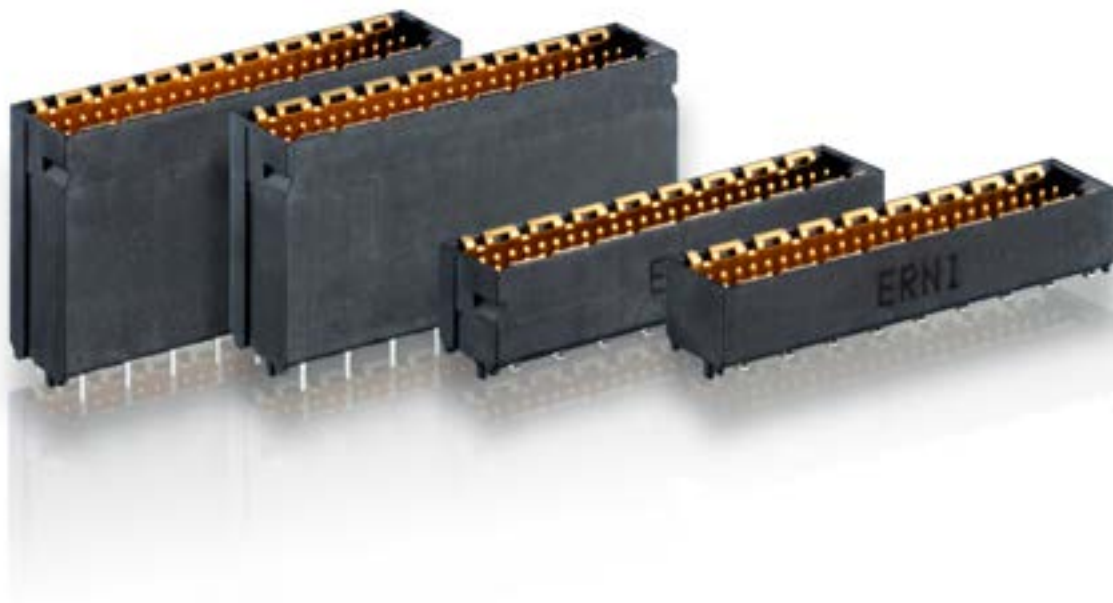
3.

Cable Assembly

Cable Series Production	29
Ribbon Cable	29
Round Cable	29

4.

Connectors and Housings



Development

ERNI connectors are small-scale works of art created by engineers. Every type offers solutions that are second to none and uniquely cover a specific range of applications. Refined details offer sharp solutions.

Production

ERNI has turned tool and mold making into a core competency. Thanks to 100 percent monitoring that ranges from design to production, we can influence the quality of all processes without compromise. We develop and produce all metal parts (including contacts and shields) as well as the matching plastic components (including insulating bodies and housings) ourselves.

Connectors

MicroStac Mezzanine Connector System



Pitch:	0,8 mm
No. of Pins:	6, 9, 10, 12, 14, 50, 54
Termination:	SMT
Standard:	-
Datarate:	-
Applications:	Mezzanine (Board to Board)

The MicroStac connector series has a hermaphroditic design. The connector and the mating connector are identical, and the typical subdivisions of male- and female-multipoint connectors are omitted. The relatively high contact force and a transfer mating reliability of 1.5 mm ensure a high level of dependability. Plug-in modules are therefore designed for applications with a limited number of mating cycles. The design calls for fast, fully automatic SMT assembly.

MicroCon dual-row Connector System



Pitch:	0,8 mm
No. of Pins:	12 - 140
Termination:	SMT, IDC
Standard:	-
Datarate:	-
Applications:	Backplane-daughter card, Mezzanine (Board to Board), Extender card, Board to cable

The dual-row MicroCon series with 0.8 mm pitch is ideal for various demanding applications in the industrial, medical, lighting, automotive and consumer market. Due to the small dimensions - the 50-pin male connectors show dimensions of only 24.2 mm x 4.7 mm with different heights - robustness was crucial during the development. The male connectors are provided with reinforced side walls. Secure mating is ensured by coding and blind mate guide alignments, providing an increased locking range. A unique feature for this miniaturized device size is the double-sided spring contact. The reliable and high quality spring contacts are based on a proven and patented principle, which ERNI Electronics has been continuously scaled down for smaller dimensions.

1.

Connectors

MicroSpeed High-Speed Connector System and MicroSpeed Power Module



Pitch:	1,0 x 1,5 mm
No. of Pins:	50, 91, 133
Termination:	SMT
Standard:	-
Datarate:	12,5 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board) Micro Backplane/ Daughter- card, Extender Card

The MicroSpeed SMT miniaturized, modular connector system, with transfer rates of up to 12,5 Gbit/s, was designed especially for telecommunications and data transmission devices. Board-to-board spacing of between 5 and 20 mm can be achieved using different heights. For differential data transmission several different signal-pair arrangements are possible. We achieve exceptional signal integrity using a design which features two signal and two shield contact rows.

MiniBridge SRC single-row Connector System



Pitch:	1,27 mm
No. of Pins:	2, 3, 4, 6, 8, 10, 12
Termination:	SMT, IDC
Standard:	-
Datarate:	-
AWG:	22, 24/26
Applications:	Backplane-daughter card, Extender card, Board to cable, Cable to cable

The small design of the single-row cable connector system in a 1.27 mm pitch is ideal for space-saving connections between the printed circuit boards and decentral function units. Despite its very small dimensions, the miniature cable connector components offer a high current carrying capacity per contact of up to 4 A. Pre-manufactured female multipoint connectors and cables together with the straight and angled male multipoint connectors available offer a number of mating possibilities for SMT connection technology.

Connectors

SMC 1.27 mm Connector System



Pitch:	1,27 mm
No. of Pins:	12, 16, 20, 26, 32, 40, 50, 68, 80
Termination:	SMT
Standard:	-
Datarate:	up to 3 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card, Board to cable (plugged and permanently)

The highly reliable Small Multiple Connector connector family offers maximum flexibility in hardware design: Connector for stacked PCB applications, orthogonal arrangement and horizontal PCB compounds. The SMC connector offers high contact density for a small space requirement. A fully metal SMT bracket also absorbs high withdrawing and mating forces. The combination of various male connector heights and female connectors supports different board-to-board stacking heights (8.0 - 20.0 mm).

ERmet 2.0 mm Hard Metric Connector System and ERmet 2,0 mm Power Module



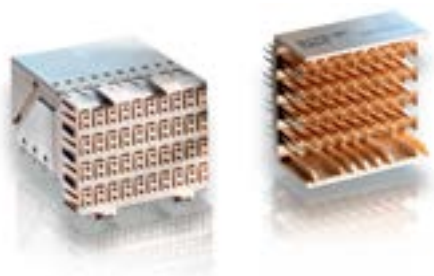
Pitch:	2,0 mm
No. of Pins:	3 - 220
Termination:	Pressfit, THR
Standard:	IEC 61076-4-101
Datarate:	up to 2 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card, Board to cable

ERNI's ERmet line of connectors offers unparalleled performance and flexibility for today's system designs. With constant technical advancements and expansions, this series of connectors supports any possible arrangement of circuit boards, such as board-to-backplane and board-to-board. ERNI's complete product offering includes right angle females, with and without shrouds, vertical males, available 15 different contact lengths, vertical females, right angle males, power connectors, shrouds, coding keys and cable assemblies. ERmet connectors are popular and well received around the world. They are primarily used in telecom- and network-systems. IEC standardization ensures compatibility between manufacturers. The ERmet product line is increasingly being used in industrial computers (IPCs), where PICMG specifications apply.

1.

Connectors

ERmet ZD High-Speed Connector System



Pitch:	2,5 x 1,5 mm
No. of Pins:	20, 30, 40 contact pairs
Termination:	Pressfit
Standard:	-
Datarate:	10 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card, Board to cable

effective shielding allow the ERmet ZD system to exhibit superb performance when it comes to crosstalk and reflections. The ERmet ZD connector has been selected as the backplane interconnect for the PICMG 3.x (ATCA) industry standard.

ERmet ZD connectors were developed for differential high-speed signal transmission in telecom applications with data rates of up to 10 Gbit/s. This robust, high quality modular connector system is just as well-suited for use in conjunction with the 2 mm HM (IED 61076-4-101) ERmet line of connectors. The inline design of the signal and ground contacts makes simple, economic routing (conductor track routing) possible.

Signal and ground contacts have different connection levels with a gap of 1.5 mm, thus ensuring a safe connection. In addition, the contacts are assembled into a robust housing. The ERmet ZD connector utilizes an optimal grid construction that reduces signal interference and offers ample room for conductor track routing. Its optimized design and

Connectors

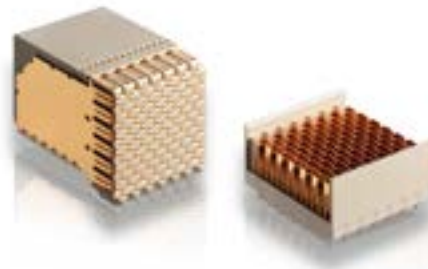
ERmet ZDplus High-Speed Connector System



Pitch:	2,5 x 1,5 mm
No. of Pins:	30, 40 contact pairs
Termination:	Pressfit
Standard:	-
Datarate:	20 GBit/s
Applications:	Backplane-daughter card

The ERmet ZDplus connector is an enhancement of the ERmet ZD family. This high-speed differential Hard Metric connector system enables data rates of 20 Gbit+. To enable higher data rates ERNI Electronics has optimized the signal routing and the pressfit termination of the female connector. To benefit from the maximum performance of the new ERmet ZDplus the usage of backdrilling is recommended. Decreasing via stub length and the related "stub effect" by backdrilling significantly reduces the reflections and the overall BER (Bit Error Rate) of the interconnect. ERmet ZDplus connectors are mating compatible with the ERmet ZD connectors.

ERmet ZDHD High-Speed Connector System



Pitch:	1,8 x 1,2 mm
No. of Pins:	84 contact pairs
Termination:	Pressfit
Standard:	-
Datarate:	25 GBit/s
Applications:	Backplane-daughter card

The ERmet ZDHD connector is a high speed, differential board to backplane connector. It is a higher density extension of our standard ERmet ZD product line. The ZDHD has an optimized footprint for improved electrical performance and is designed for data rates up to 25 Gbits/s. ERNI's ZDHD will be available in a 6-pair version.

1.

Connectors

ERmet zeroXT High-Speed Connector System



Pitch:	2,5 x 1,5 mm
No. of Pins:	40 contact pairs
Termination:	SMT/ THR
Standard:	-
Datarate:	> 10 GBit/s
Applications:	Backplane-daughter card

This high speed backplane connector system was developed to meet the electrical requirements in designs with differential, low-voltage signals and data rates beyond 10 Gbit/s. ERmet zeroXT has a very low Crosstalk level, minimal skew, good routing properties (simple conductor track routing), a reliable dual beam female contact design, different contact levels, and a robust housing. The optimized contact grid (2.5 mm) allows for effective and flexible routing. Every differential signal pair is closely coupled with the ground signals to ensure a controlled impedance. Each wafer is enclosed by a shield plate. In addition, all differential signal pairs on the male connector are shielded by C-shaped shields.

Pre-Alignment Modules



Pitch:	-
No. of Pins:	-
Termination:	Screw Terminal
Standard:	-
Datarate:	-
Applications:	Backplane-daughter card

The alignment modules were developed to securely connect the daughter card to the backplane. The modules also offer integrated support for HM coding pieces. Coding at the connector is no longer required, and more signal contacts are available as a result. For an even more stable and “capacitive” coding, there are guide pins designed that match the coded hole in the counterpiece. This provides an additional eight different codings, including an octagonal version. Another auxiliary function is the version featuring an electrical contact. The gold-plated contact surfaces allow low-resistance shielding, and transmitting current over a large cross section with up to 40 A at 20 °C.

Connectors

MaxiBridge SRC Single Row Connector System



Pitch:	2,54 mm
No. of Pins:	2, 3, 4, 5, 6, 8
Termination:	SMT, Crimp
Standard:	-
Datarate:	-
AWG:	16, 18, 20/22, 24/26
Applications:	Board to cable

The 2.54 mm single row cable connector system is ideally suited for high reliable and space saving connections between PCBs and decentral units, e.g. lamps or info-panels, front plate elements like buttons, switches, fuses or LEDs, motors, fans etc. The system is extremely versatile thanks to the availability of straight and angled male multipoint connectors in SMT technology. The pre-manufactured cable connector is mechanically coded with the male multipoint connector and protected against accidental release, as a result of vibration for example. It can be unlocked without using any additional tools. The single row cable connector components offer a high current carrying capacity per contact of up to 12 A.

DIN 41612/IEC 60603-2 Connectors



Pitch:	2,54 mm
No. of Pins:	16 - 160
Termination:	Pressfit, THR, solder, hand solder, crimp, clamp, faston, IDC
Standard:	IEC 60603-2
Datarate:	up to 1 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card, Board to cable

The DIN 41612/ IEC 60603-2 connector line from ERNI includes standard connectors and customer-specific connector solutions. The standard and inverted connectors for printed circuits correspond to national and international standards. All connectors have the same installation requirements, regardless of differing application characteristics. This connector line includes modules with a high contact density for low voltages; and modules with a low contact density for high voltages. In addition to the standard types, ERNI offers a wide variety of versions and connection technologies that provide users with economical solutions.

1.

Connectors

Pin Headers and Sockets Series STL



Pitch:	2,54 mm
No. of Pins:	2 - 100
Termination:	Pressfit, THR, SMT, solder
Standard:	-
Datarate:	-
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card

ERNI pin connectors are one- and two-row plastic strips assembled with square 0.6 x 0.6 mm pins. The connector side is completely gold-plated, and the terminal side is tin-plated. Unshrouded headers are available in different connection lengths and termination types. Right-angle versions are also available. Single and dual row connectors can easily be broken off to the desired number of pins that is required, by using predetermined break points. Any number of pin connectors can be arranged next to each other in a row, as the housings have detents on their long sides. ERNI supplies many customer-specific solutions of this kind. It is also possible to have unshrouded headers with a pressfit zone on both sides - an inexpensive board-to-board connection.

IDC PCB-Terminals



Pitch:	-
No. of Pins:	-
Termination:	SMT, IDC
Standard:	-
Datarate:	-
AWG:	22, 24
Applications:	Board to cable

ERNI Electronics enables reliable PCB connections in extremely miniaturized applications like bulbs or LED systems. The IDC-PCB terminal, with a total height of only 2.9 mm, eliminates manual preparation of wires prior to termination. The IDC dual contact provides a reliable, gas tight connection to the conductor wire. This means that costly and unreliable hand soldering can be replaced and no special tool is required for termination. The total dimensions (2.4 mm x 2.2 mm x 2.9 mm) and the required PCB space are significantly smaller compared to other solutions.

Connectors

LPV

1.



Pitch:	2,54 mm
No. of Pins:	10, 14, 16, 20, 26, 34, 40, 50, 60, 64
Termination:	Pressfit, THR, solder, IDC
Standard:	IEC 60603-13
Datarate:	-
Applications:	Board to cable

by improper mating. Optional locking latches secure the connection against inadvertent release due to vibration or shock. The male connectors are available obtained as a pressfit, wave soldering or THR connection system.

ERNI LPV connectors (Latch Headers), in compliance with IEC 60603-13 (DIN 41651), are well known to our customers worldwide. These connectors were installed in large number for interfacing hard disk drives (HDDs) to processor boards about 10 years ago. Miniaturization has created increasingly popular “low profile” versions (e.g. for embedded systems featuring the PC104 or PC104 plus standard). The international standard specifies a soldered pin connector for circuit boards.

Meanwhile, other termination types have been established, in addition. The female connector is designed to be used to connect a ribbon cable using IDC technology. Integrated coding at the center of the insulating housing eliminates contact damage caused

Connectors

Power Tabs



Pitch:	2,54 x 7,62 mm
No. of Pins:	1
Termination:	Pressfit, solder
Standard:	-
Datarate:	-
Applications:	Board to cable

Two-row power supply terminals featuring an elastic pressfit zone or dip solder connection were developed by ERNI for connecting power supply lines. The power supply conductor is connected to a cable lug by means of a screw. If configured correctly, an operating current of up to 40 A is possible.

Power Elements



Pitch:	-
No. of Pins:	-
Termination:	Pressfit
Standard:	-
Datarate:	-
Applications:	Board to cable

Within the scope of BLUEcontact™ Solutions, ERNI also provides various power components with massive pressfit zones or combined elastic and massive pressfit zones. While the massive pressfit zone guarantees torque support and secure fixture, the flexible pressfit zone provides optimal power transmission. ERNI power elements are designed for a current rating up to 290 A at an ambient temperature of 20 ° C.

Connectors

D-Sub Connectors

1.



Pitch:	-
No. of Pins:	9, 15, 25, 37, 3W3, 5W5, 8W8, 3WK3, 7W2
Termination:	Pressfit, THR, SMT, solder, hand solder, crimp, IDC
Standard:	IEC 807-3
Datarate:	1 GBit/s
Applications:	Backplane-daughter card, Mezzanine (Board to board), Extender card, Board to cable

generation has been designed on this basis. They are available in male and female with different termination types, both straight and right angled. This new generation is fully RoHS-compliant.

D-Sub connectors, are primarily used as interface connectors. With five different pin counts and various termination types available, these connectors are found in almost all applications. ERNI has a comprehensive line of accessories for D-Sub connectors. Whether for easy assembly, different connection types, EMC, or interlocking, you will find innovative solutions from ERNI. Today's printed circuit board designs demand flexible and economic connector concepts. For our customers this means availability of a complete series with all connection technologies at an attractive price. For ERNI, this means the modularization of connector concepts, from design through manufacturing. The new D-Sub

Connectors

Modular Jacks RJ11, RJ45 with/without integrated magnetics



Pitch:	-
No. of Pins:	2, 4, 6, 8, 10
Termination:	SMT, solder
Standard:	IEC 60603-7
Datarate:	Cat 3/4, 5, 5e
Applications:	Board to cable

Modular Jacks have been used in the ethernet and telecommunications industry for many years. Whether integrated in a simple telephone system, or in a gigabit application, "Mod Jacks" represent the standard for network connections. Modular Jacks can be obtained in many different versions. Increasing data rates and space-saving requirements are driving increasing requests for these connectors with integrated filter components.

M8/M12 Circular Connectors



Pitch:	-
No. of Pins:	3, 4, 5, 8, 12, 17
Termination:	SMT, THR, IDC
Standard:	IEC 61076-2-101, IEC 61076-2-104
Datarate:	IEC 61076-2-109
Applications:	1 GBit/s Mezzanine (Board to board), Board to cable

Plug-in solutions can be implemented easily and quickly with the modular international circular connector system according to IEC 61076-2. M12 connectors are currently recommended as field bus connectors for almost all field bus specifications and are available in multiple codings. The introduction of the new M8/M12 connectors illustrates ERNI's commitment to develop a reliable and flexible I/O or field bus connection on the circuit board. Furthermore, I/O splitter boxes are available.

Connectors

ERbic Field Bus Interface Connector System

1.



Pitch:	-
No. of Pins:	-
Termination:	Screw terminal, cage clamp, IDC
Standard:	Profibus, CAN
Datarate:	1 MBit/s, 12 MBit/s
Applications:	Board to cable

ERbic fieldbus connectors combine compact dimensions with horizontal or vertical cable termination. The connectors are color coded, with or without integrated termination resistors or switches and available in CAN bus, Profibus and Safetybus p versions. The optionally integrated switch allows the flexible configuration of Profibus or CAN bus connectors. The switch turns the termination on and off and can be operated without having to open the housing. All MAX versions include a termination switch and are made of diecast metal. They are ideally suited for use in harsh environmental conditions and for meeting critical EMC requirements. The MAX housing has an axial cable outlet and is therefore suitable for applications where space on the front panel is a critical issue.

Housings

D-Sub Cable Housings



ERNI offers different types of connector housings for D-Sub connectors:

- KSG 183, a two-piece housing with snap-in latches.
- KSG 185, a two-piece housing with snap-in latches and/ or screw locking & integrated coding
- KSG 200 two-shelled housing with screw-type interlock, internal shield plates, fully insulated from the outside for high EMI and ESD protection.

These cable housings are also available metallized. Together with the ERNI D-Sub connectors that have a lamella spring for contacting, optimal attenuation of the radiated noise can be achieved.

DIN Cable Housings



This ERNI cable housing line and the ERNI transfer connection system were developed for connectors to DIN 41612/ IEC 60603-2. The line focuses on the 19" system. The following housings are available for the different DIN connectors:

- KSG 173 modules: B, C, D, E, M, H11, H15, Q, R, E 160, TE 160, RD 128
- KSG 193 modules: B/2, C/2, Q/2, R/2
- KSG 203, 204 modules F, Fi
- KSG 253 modules: C (IDC technology)

Housing characteristics:

- Max. of 3 cable outlets with strain relief
- Metallized versions for shielding
- Guide parts and guide frames for front and rear side.
- Solid screw-type interlock and integrated coding

Housings

Enclosures IDG-A



The IDG-A enclosure is designed for modern applications in housing management equipment, measurement relays, modular time switches, light switching units and for modules in decentralized automation. This new slimline enclosure permits easy snap-on assembly onto DIN-rails with an installation width of only 17.5 mm. The snap together design permits ease of assembly and soldering of the complete PCB (with the terminals and components). Simply insert the PCB and snap together the bottom and the top parts. Easy cable termination is possible via screw terminals or plug-gable termination. You can install 2 or 3 smaller PCBs vertical to the bigger PCB.

The vertical PCBs allow for the use of components requiring additional height (like transformers, relays, etc). The hinged transparent cover allows easy adjusting and protection of any switches and/ or signalling devices.

Enclosures IDG-B



IDG-B enclosures are manufactured completely from plastic material and are therefore fully insulated. They fulfill the modular packaging conditions required by existing standards like DIN 43880 (Built-in equipment; overall dimensions and related mounting dimensions). The enclosures have different installation widths ranging from 35 mm to 157 mm. IDG-B enclosures are designed to mount onto a DIN-rail (EN50022) with a snap-in clip, which is pre-assembled on the bottom of the base part.

The different versions of the top part allow the use of standard screw-terminal-blocks. One version is suitable for print-terminal-blocks and another version is able to adopt pluggable-terminal-blocks which have a pin header soldered onto the printed circuit board. Custom designs including colors or cut-outs for other connectors can also be offered. The upper side of the top part can be modified with cut-outs for specific connectors, light-guides for LEDs, displays, rotary switches etc.. The transparent front cover protects displays from being touched and switches from accidental manipulation.

1.

Housings

Miniature Enclosures LDG-A



LDG-A miniature enclosures are engineered for quick and easy installation for standard DIN-rail or screw mounting. These non-metallic enclosures are ideal for housing electrical, electronic and electro-mechanical devices such as sensors, controllers, power supplies, monitors, timers and many other small electronic components. These enclosures, with a standard depth of 75 mm (approximately 3") and an approximate height of 100 mm (4"), come in a range of sizes (width) from 22.5 mm (approximately 1") up to 224.7 mm (approximately 9"). A simple snap-in cover and pre-assembled terminal housing block, for as few as 12 connections or up to 70 connections, make up the ERNI enclosure offering. Selective loading, pluggable termination, special colors and other specialized options and customizations are also available. These enclosures meet universal electrical standards including UL and CSA.

Miniature Enclosures LDG-S

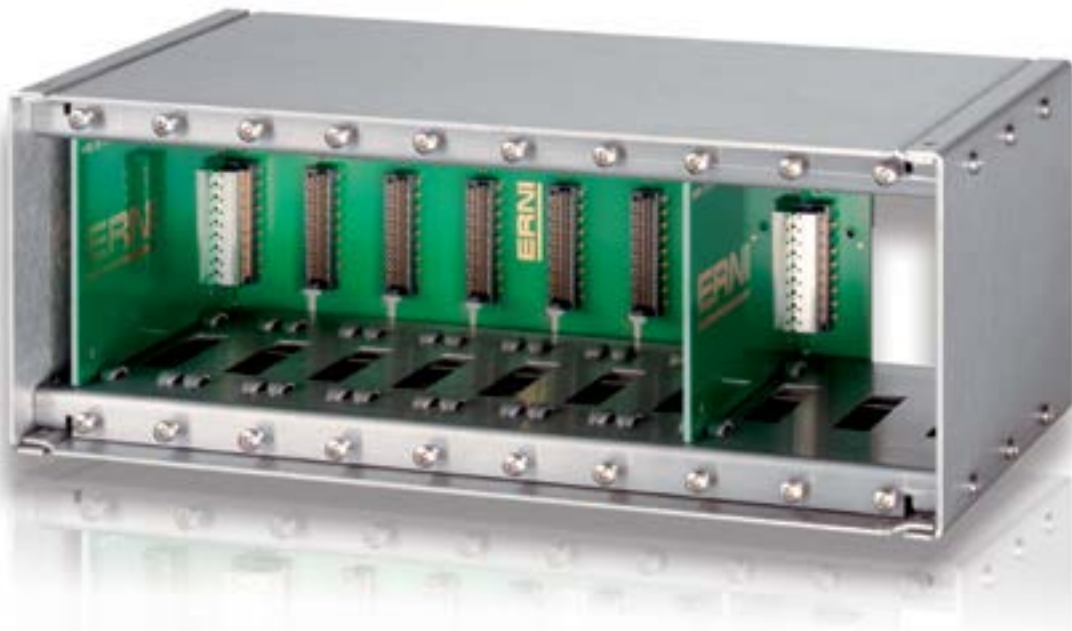


The LDG-S series of enclosures are fully insulated enclosures according to the specifications of the machinery and the automotive industries. The enclosures are designed for easy snap-on assembly onto DIN-rails by an integrated snap-on clip. These enclosures facilitate economical device assembly with optimal utilization of space. For the termination of the conductors of the cable two enclosure versions are available:

- pluggable terminals for easy servicing and exchange (commercial pin headers on the pcb)
- screw terminals for a fixed termination of the conductors.

For effective heat dissipation the LDG-S enclosure features a base part with integrated ventilation slots. Closed versions (without ventilation slot) are available on request.

Backplanes and Complete systems



1.

2.

Development

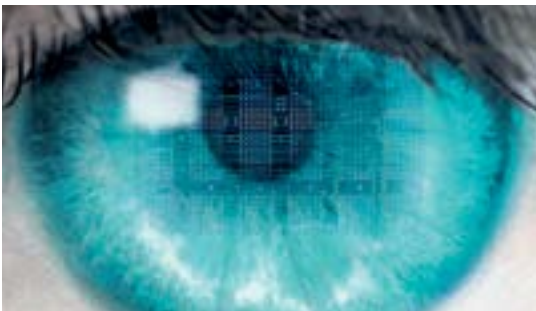
As a system partner, we offer you consultation and service support for the design of bus circuit boards, electronic assemblies and complete systems. ERNI offers the complete development from the concept to the readiness for series production, including documentation and effective testing.

Production

As a leading innovator of solder-free pressfit technology, ERNI offers the complete system; a wide variety of pressfit-capable connectors, manual and semi-automatic presses all the way to the fully automatic EPC III. All production processes: Pressing in, installation, selective soldering, connection test and function test are all performed at ERNI at the highest level of quality.

Backplanes and Complete systems

Design and Development



Product concept

- From idea to specification sheet
- Structuring
 - Connector selection
 - Shape factor
 - Communication and connection structures

Simulation

- Electrical
 - Current distribution
 - Signal integrity
- Thermal

System layout

- Signal routing and optimization
- Component positioning
- Power supply
- Electrical safety

Mechanical construction – electronic packaging

- Sheet-bending structures
- Profile-based structures
- Composite designs

Prototypes-, Small Batch- and Series Production



Prototype construction

- Strategic partnerships with PCB manufacturers and mechanical component producers
- Resources for prototypes

Small batch production

- Variable production without minimum unit quantities
- Semi-automatic assembly
- Alternative production in North America and Europe
- ERNI EPC3X Hydropneumatic Pressfit Center
- Evaluation of the production efficiency
- Production process oriented toward volume

Series production

- Fully automated pressfit assembly with automated inspection (AOI)
- Hand press systems with PC control
- Process control and monitoring, recording the press-in forces
- Tools available for all connector designs
- Suitable for large sizes (1400 x 600 mm)
- UL-certified production E 258941

Backplanes and Complete systems

Subrack Production



ERNI offers customer-specific complete backplane and housing solutions: We use standard profiles or flexible sheetmetal bending devices, depending on the requirements. EMC-compliant construction, fan installation, power supply and cable routing are only a few of the services offered by ERNI system technology.

Subracks / integration

- Housing, backplane, voltage supply, fan, cabling
- 4 ESD assembly lines for subracks
- Fully equipped testing stations for the safety test system/ function tests
- Electrical and mechanical accessories for a ready-to-deliver product
- Packaging

WHITESpeed/ Computer on Module



ERNI WHITESpeed is a powerful, reliable and space-saving embedded computer. In developing these COM products, ERNI has been able to draw on its extensive experience in the field of board and backplane design in addition to its core competency in compact and high performance connectors.

On a credit card format (85 mm x 55 mm), the new mezzanine boards offer a powerful i.MX537 CPU from Freescale with an ARM Cortex-A8 core. To permit high-speed and reliable connection to the baseboard and I/Os, two-row 50-pin MicroSpeed connectors are available. The MicroSpeed connectors are characterised by the proven dual-leaf spring contact and the effective shielding. This allows high data rates (up to 10 GBit/s) to be transmitted reliably.

The on-board memories include DDR3-RAM (1 to 2 GB), reliable NOR flash (64 to 256 MB) for the boot code, NAND flash (2 to 4 GB) and I2C-EEPROM with up to 128 kB for the configuration data. The CPUs also offer comprehensive power management functions. For the product launch, Linux support is provided by a board support package (BSP). Real-time Linux, Windows (Windows Embedded) as well as additional operating systems are to follow on request.

2.

Backplanes and Complete systems

CompactPCI Backplanes



ERNI has a wide variety of standard compactPCI backplanes in different versions.

For example:

- 3 HE compactPCI backplanes with 2, 4, 5, 6, 8, 10 or 11 Slots
- 6 HE compactPCI backplanes with 4 to 18 Slots
- 3 HE and 6 HE compactPCI power backplanes
- CompactPCI backplane for computer telephony

VME Backplanes



We also offer solutions for these standards:

- VME
- VME 64
- VME 64X
- 3U, 6U
- Variants with up to 21 slots



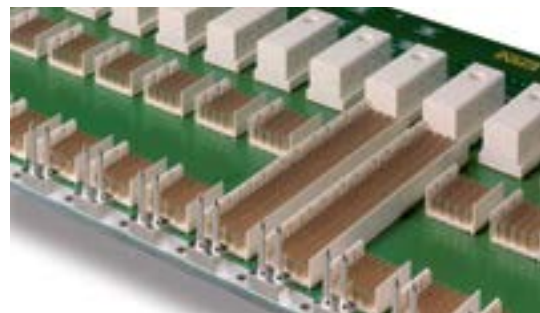
ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
E-08918 Badalona
(Spain)

Tel.: (+34) 902 450 160
Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
C/ Sagasta, 8, 1ª planta
E-28004 Madrid
(Spain)

PORTUGAL
portugal@ermec.com
BILBAO
bilbao@ermec.com

AdvancedTCA for High-Speed on Backplanes



Our standard range of backplanes is supplemented by the ATCA variant. With switch fabric solutions, one can achieve a continuous data stream of 4 x 3.125 GBit/s.

Different topologies are available for different slot counts:

- Dual-star
- Dual-dual-star
- Full-mesh

Backplanes and Complete systems

Tools and Presses



ERNIPRESS, is frequently used right at the customer's facility. ERNI manufactures the pressfit tools required for the different connector series. Likewise, the manufacturing equipment (from the simple lever press to the hydropneumatic press) is developed and produced in-house. Even if you want to process several components at once, ERNI can help you do it.

Processing equipment:

The equipment required for terminating the cable for our IDC connectors is produced according to your specific requirements. Regardless of whether your cabling is done in low volumes in a workshop or in a high volume production setting, ERNI has a solution that fits.

Press fit tools:

ERNI offers the right pressfit tools for every available pressfit connector, both male and female. We have tools available for every connector that we manufacture (e.g. ERmet, DIN, etc.).

Presses:

A flexible and reliable press -the EPC 3X - was developed for the small- and mid-sized series production of backplanes. The press is available with different controls, such as a simple step control, a PLC control, or a PC control. The press in force can be monitored on a display, depending on the equipment selected.

2.

SMT and THT Soldering



Development

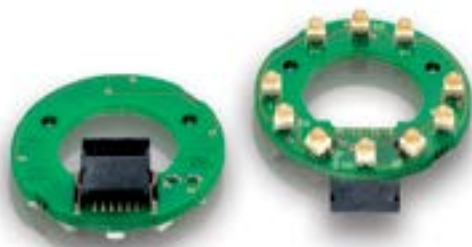
The development and layout are performed with state-of-the-art technology, such as the documentation center, PCB Layout Mentor Graphics Expedition, 3D Fieldserver CST Microwave Studio and characterization (TDR /TDT).

Production

With the integration of soldering technology by ERNI Electronic Solutions, ERNI can now cover all requirements for boards and systems in-house: SMT and wave soldering of bus circuit boards, electronic assemblies and complete systems with assembly installation and testing.

SMT and THT Soldering

Electronics Development



From product idea to optimized series production, we support you with our development team. Tailored to your requests, we can offer individual development, layout and qualification services within the ERNI company group.

- Development and layout of electronic assemblies
- High-current designs
- Controller designs with Atmel and microchip
- Standard based solutions (e.g. cPCI, VME, ATCA, μ TCA)
- Serial high-speed designs (e.g. PCI Express, Rapid I/O, XAU)
- Development of housings for electronic devices and systems
- Documentation
- EMC consultation

PCB Assembly



We assemble your PCBs with electronic components in SMT (surface mount technology), in the conventional THT (through hole technology), in a combination of both processes, the new THR process (through hole reflow). All soldering processes can be performed with both lead-free solders and solders containing lead. We would be happy to take care of the complete material procurement for you.

- 24-hour assembly service
- Parts list preparation and documentation service
- Cost-effective material procurement by means of purchasing synergies in the ERNI company group
- SMD assembly of fine-pitch components (e.g. BGA, QFN, QFP, ERNI Microspeed connector)
- Handling components susceptible to moisture (moisture sensitive level ≥ 3)
- Automated optical inspection (AOI) of SMD assemblies
- THT assembly (wave soldering)
- Soldering processes free of or containing lead
- Production and check of the assemblies as per IPC-A610 class 2
- Prototypes, small and medium series up to about 1000 assemblies per batch

3.

SMT and THT Soldering

Electronic Packaging



If necessary, we further process your assembled PCBs into complete assemblies and devices. Our capabilities include assembly wiring, the installation of attachments, housing integration and the electrical check of the entire system.

- Assembly wiring
- Installation of attachments
- Integration in subrack or other housings
- Customer-specific test procedures
- Labeling, management of serial no., packaging

Testing Technology and SMD Rework Service



Testing

Every assembly is tested individually. In addition to the automated optical inspection (AOI), we also offer in-circuit tests (ICT) and functional tests. In coordination with our customers, we develop the test software and create test adapters in our own test equipment construction department.

- Automated optical inspection (AOI)
- In-circuit test (ICT)
- Functional test (FT)
- Boundary scan test
- Customer-specific electric tests
- Development of test software
- Construction of test adapters
- Component programming (individually and on-board)

SMT and THT Soldering



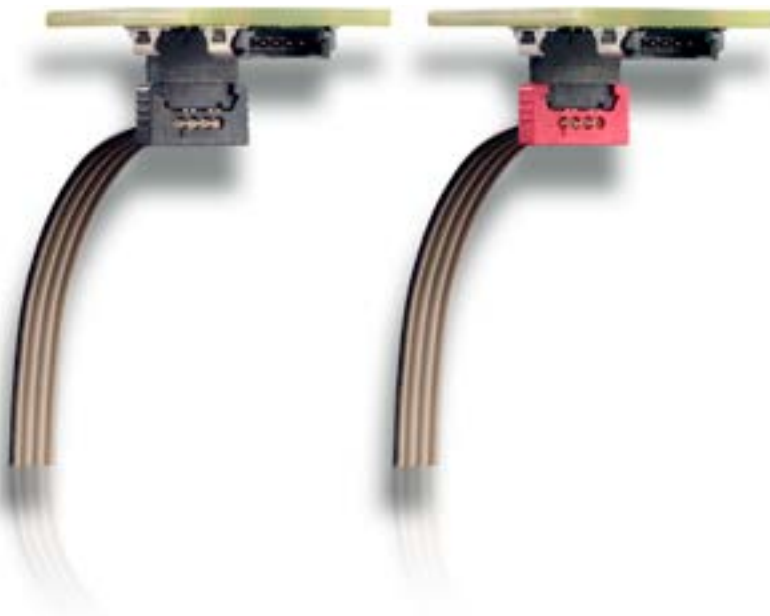
Rework service

Do you want to desolder electronic components from your assembly and solder on new components where necessary? We offer you a professional repair service for this. With state-of-the-art equipment, fine-pitch components (BGA, QFP, QFN, etc.) or complex SMD connectors (e.g. ERNI MicroSpeed) are reworked without the use of extreme temperatures. If necessary, we analyze the solder joints with an X-ray machine.

- Desoldering complex components such as BGA, QFP, QFN, ERNI MicroSpeed
- Non-contact residual solder extraction
- High precision automated dispensing of solder paste
- Positioning and soldering of complex components
- Automatic process control and process documentation

3.

Cable Assembly



Development

ERNI has individual solutions for every connection problem. The ERNI engineers develop solutions for every challenge within connector technology. Flat cables, round cables and single strands together with diverse connectors offer individual solutions. Ideal costs are of particular importance to us here.

Production

With fully automatic and semi-automatic cable systems for ribbon cables and a stripper crimper for single strands, ERNI possesses first-class production equipment. Round cables and single strand assembly in solder and crimping technology round off our product range. With ERNI the imprint and electrical check are naturally included in the service.

Cable Assembly

Cable Series Production



- Supplier management
- Cable production:
 - IDC, crimp, solder, etc.
 - Fully automated systems for IDC ribbon cable production
 - Semi-automated systems for medium unit quantities
 - Printing
- High degree of automation in cable production and testing
- Tests performed alongside production:
 - Micrographs for production approval in the cable production
 - Extraction force tests
 - IPC-A620 class 2
 - Visual inspections following every operation
 - Adjustment gauges, check of the torques, etc. during assembly operations
 - UL-certified production E 332028

Cable Assemblies: Ribbon Cables



ERNI connectors for ribbon cable termination are supplemented by a range of complete cable assemblies. In addition to predefined standard cables, we manufacture cables according to customer-specific requirements.

Cable Assemblies: Round Cables



Our line of cable housings for DIN connectors, D-Sub and field bus wiring is also accompanied by our cable assembly service, in accordance with the ERNI system concept.



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
E-08918 Badalona
(Spain)

Tel.: (+34) 902 450 160
Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
C/ Sagasta, 8, 1ª planta
E-28004 Madrid
(Spain)

PORTUGAL
portugal@ermec.com
BILBAO
bilbao@ermec.com

ERNI Electronics GmbH

Seestrasse 9
73099 Adelberg/Deutschland
Tel +49 7166 50-0
Fax +49 7166 50-282
info@erni.de

Europe South America Africa Japan

ERNI Electronics, Inc.

2201 Westwood Ave
Richmond, VA 23230/USA
Tel +1 804 228-4100
Fax +1 804 228-4099
info@erni.us

North America Canada Mexiko

ERNI Asia Holding Pte Ltd.

Blk 4008 Ang Mo Kio Avenue 10
#04-01/02 Techplace I
Singapore 569625
Tel +65 6 555 5885
Fax +65 6 555 5995
info@erni-asia.com

Asia

© ERNI Electronics GmbH 2012 • Printed in Germany. A policy of continuous improvement is followed and the right to alter any published data without notice is reserved. ERNI®, MicroStac®, MicroSpeed®, MiniBridge®, MicroCon®, MaxiBridge®, ERmet®, ERmet ZD®, ERbic®, ERNIPRESS®, INTERact®, WHITEspeed®, BLUEcontact®, Act. Connect. Perfect.® and ERNI WoR&D® are trademarks (registered or applied for in various countries) of ERNI Electronics GmbH. AdvancedTCA®, CompactPCI® and CompactPCI Express® are trademarks of PCI Industrial Computer Manufacturers Group.