

## EMBEDDED SYSTEMS

### FANLESS INDUSTRIAL COMPUTERS

**Rugged Box PCs for automation industry**  
Many options of I/O interfaces to find the optimal solution for the application, highest reliability because of fanless design, Watchdog built-in

- Anti-vibration & shock
- Embedded OS
- Dust resistant
- Wide input voltage range
- Compact size
- Wide operating temperature
- Strong metal housing
- Low power consumption
- Long life and availability



### Full HD & Ultra HD Digital Signage Solutions

Wide range of industrial media players designed to 24/7h operation, Perfect graphic performance, Various video outputs



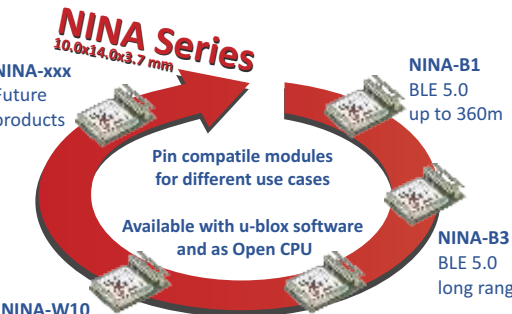
### In-vehicle computers and displays

Variety wireless communication: GPS, GSM, WLAN  
Flexible ignition control, easy adaption to car power-system, Railway EN50155 certificate



### ISM PRODUCTS

**Certified industrial Bluetooth modules**  
BT 2.1, BT 4.0 and BT 4.2 & 5.0, with medical certificates  
Modules with dedicated MCU for built-in applications  
**Wi-Fi modules**  
Ultra compact (10x14x3.8mm) NINA-W modules, pin compatible with Bluetooth modules

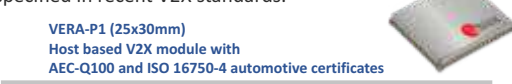


**Multiradio modules**  
Wi-Fi, Classic BT and BT 4.0 (BLE) combined in one stand-alone module  
Wi-Fi (a/b/g/n/ac), Classic BT, BT 4.1 in one host module



### V2X transceiver modules

Vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) wireless technology, collectively known as V2X, improves road safety, reduces traffic congestion and enhances the overall passenger experience. Positioning modules NEO-M8L, compliant to accuracy requirements under conditions specified in recent V2X standards.



**ISO Cards, Key Fobs, Wrist Bands, PET laminates**  
RFID system solutions for: Access control, Animal identification (Pet, bird and livestock), Industry and logistic (also KEG and waste ID)

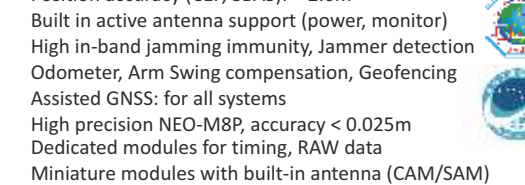
The use of u-blox modules does not lead to consequences from infringement of patents and copyrights

### WIRELESS TECHNOLOGY



**State of the art GNSS modules based on the latest u-bloxM8/u-blox8 technology, GPS/GALILEO/Glonass/BeiDou/QZSS support**

Form factors: MAX, NEO, LEA, EVA, ZOE, SAM, CAM  
Qualified for in vehicle use (ISO16750)  
High performance GNSS receivers, sensitivity: -167dBm  
Extremely low power: 6.6mA/1.8V (fix every 1s)  
Position accuracy (CEP, SBAS): < 2.0m  
Built in active antenna support (power, monitor)  
High in-band jamming immunity, Jammer detection  
Odometer, Arm Swing compensation, Geofencing  
Assisted GNSS: for all systems  
High precision NEO-M8P, accuracy < 0.025m  
Dedicated modules for timing, RAW data  
Miniature modules with built-in antenna (CAM/SAM)  
Built in sensors for navigation without sky view (NEO-M8L/U)



**NEO-M8U**  
Dead Reckoning with the new NEO-M8L and NEO-M8U  
Using built-in sensors (gyro, accelerometer, temperature)



**NEO-M8U**  
The UNTHETTERED DEAD RECKONING (UDR) module  
NEO-M8U requires no additional connection, only GNSS signal

**New u-blox F9 - multiband, next level of positioning**

The u-blox F9 platform was created for reliable navigation under challenging conditions met in nowadays environment. Uses multiple bands (L1/L2/L5) to correct errors caused by the ionosphere and delivers fast TTFF.

The first modules based on u-blox F9 platform are expected in 2018.

The use of u-blox modules does not lead to consequences from infringement of patents and copyrights

### WIRELESS TECHNOLOGY

**Reliable, field proven GNSS and GSM/UMTS/LTE/NB1oT**

**High performance GSM, UMTS, LTE, NB1oT modules**  
Navigation without GPS, based on GSM network  
eCall ready products with in-band modem  
LTE low Cat (Cat.1, Cat.M1, Cat.NB1) support

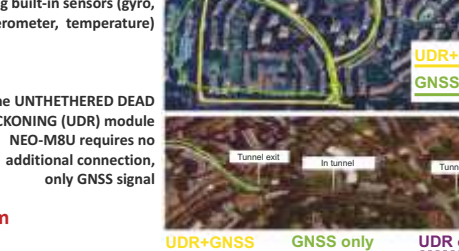
**SARA-G GSM/GPRS modules**  
Embedded TCP/UDP/IP, FTP/HTTP/SMTP stack  
Version with ATEX certificate  
Low power consumption (<0.9mA idle, 2.9mA active mode)  
Built-in Assisted GNSS client to support GNSS modules  
BIP, SSL, DTMF, SIM card detection  
One PCB design for GSM, UMTS, LTE (including Cat.1, Cat.M1 and NB1oT) modules

**SARA-U2 family of GSM/UMTS/HSPA compact modules**  
Form factor as small as 16.0x26.0x3.0mm  
Worldwide version, with all 2G+3G bands  
Pin compatible to GSM, LTE (including Cat.1, Cat.M1 and NB1oT) modules  
Low power consumption

**SARA-R2 LTE Cat.1 modules**  
Data rate up to 10 Mbps  
Significant cost reduction comparing to LTE Cat.4  
Version LTE Cat.1 + 2G to protect coverage  
Pin compatible to GSM, UMTS, LTE (Cat.M1, Cat.NB1/NB1oT) modules  
Pin compatible to SARA modules

**TOBY-L2/L4, MPCI-L2 LTE Cat.4/6 modules, mPCI cards**  
GSM/GPRS/HSPA+/LTE Cat.4/6  
Up to 300Mbps data rate

**WIRELESS ACCESSORIES**  
GSM, GPS, GLONASS, Iridium, WiFi, ISM antennas  
Helical GPS & GLONASS antennas  
L1 & L2 band antennas  
HF connectors, adapter cables  
Evaluation kits and software



### WIRELESS TECHNOLOGY

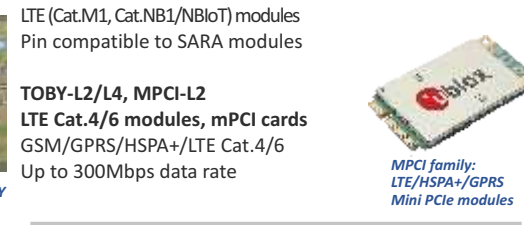
**SARA-N2 NB1oT / LTE Cat.NB1 modules**  
u-blox is the market leader in development of the latest, **Narrow Band IoT technology**  
Standardized by 3GPP as LTE Cat.NB1  
Using the current GSM network (global coverage)  
Low power (10 years on battery)  
Min. 20dB better link budget than GSM (2 levels more under the ground)  
Long service availability (LTE bands)  
Over 100k devices in one cell  
Dedicated to M2M, no voice, ATEX  
Pin compatible to GSM, UMTS, LTE (Cat.1, Cat.M1) modules

**SARA-R4 LTE Cat.M1 + NB1 modules**  
Global (multiband) design  
2G/GPRS fallback  
LTE technology dedicated to lower data rate applications  
Data rate up to 1 Mbps, **CoAP, MQTT**  
Significant cost reduction comparing to LTE Cat.4 / Cat.1  
Better link budget than GSM/LTE Cat.4  
Long service availability due to LTE bands (2G/3G replacement)  
Pin compatible to GSM, UMTS, LTE (Cat.1, Cat.NB1/NB1oT) modules

**LARA-R2 LTE Cat.1 modules**  
Data rate up to 10 Mbps  
Significant cost reduction comparing to LTE Cat.4  
Version LTE Cat.1 + 2G to protect coverage  
Pin compatible to GSM, UMTS, LTE (Cat.M1, Cat.NB1/NB1oT) modules  
Pin compatible to SARA modules

**TOBY-L2/L4, MPCI-L2 LTE Cat.4/6 modules, mPCI cards**  
GSM/GPRS/HSPA+/LTE Cat.4/6  
Up to 300Mbps data rate

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### WIRELESS TECHNOLOGY

**Reliable interconnect products**

**SIM / Nano SIM / Pico SIM connectors**  
Memory Card Connectors  
USB Connectors  
Board to board connectors  
FFC connectors  
Dedicated white connectors for LED boards

**DC Power Jacks**

**Modular Jacks**

**Components**  
Terminal Blocks, PCB mounted, pluggable and other  
interconnection solutions, Fuses & Fuse-holders, Batteries, LEDs & Indicators, Miniature Switches, Limit & Safety Switches, DIN Rail mounted Interface Modules, Control Products and Transformers

**Enclosures**  
Universal Housings, Hand-held Enclosures, Die-cast Boxes, Potting Boxes, Desktop Cases, Instrument Cases, DIN rail Enclosures or Interface Supports

**Full customisation service for all enclosures**  
With custom colours, surface coating & RFI shielding, engraving & silk-screening, labels & membrane Keypads, as well as milling for all types of connectors and control components

**Custom enclosures**  
Designed, prototyped and manufactured to specific and exacting requirements with rapid lead-times using Flat Sheet Plastic Technology process, a solution for unique enclosure requirements without tooling costs



### ELECTROMECHANICAL

**Push-pull circular connectors and cable assembly solutions**

Multipole Low & High Voltage connectors  
Coax Low & High Voltage connectors  
Triax connectors  
Fiber optic connectors  
Fluid / Gas connectors  
Hybrid connectors  
Tools and accessories

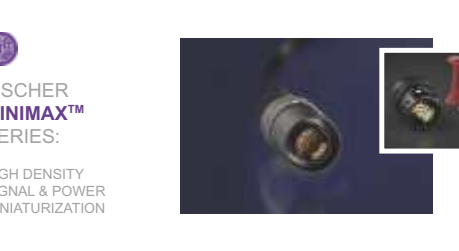
**Serving all markets**  
From Medical to Defense  
From Instrumentation to Food and more

**FISCHER CORE SERIES:**  
ANY SIZE  
ANY CONFIGURATION  
ANY APPLICATION

**FISCHER ULTIMATE™ SERIES:**  
RUGGED  
COMPACT  
LIGHTWEIGHT

**FISCHER FIBEROPTIC SERIES:**  
ROBUST  
OPTICAL PERFORMANCE  
EASY CLEANING

**FISCHER MINIMAX™ SERIES:**  
HIGH DENSITY  
SIGNAL & POWER  
MINIATURIZATION



### ELECTROMECHANICAL

**Terminal blocks**  
SPRINGCON - spring type  
RIACON - screw type  
PLUGCON - pin strips  
IDCON - IDC - PCB connectors  
**Data communication solutions**  
Industry RJ45 & fiberoptic connectors  
Ethernet M12 connectors  
Patch cords

**Industrial Cables**  
VDE/UL/CSA/MIL approvals  
DIN standards  
Single, multiple, fine, ultra-fine wire  
Single, double, triple coloured  
Insulation: PVC/PE/TPE/silicone/PP/PA Tefzel/Teflon/PUR/  
Glass filament/EVA etc.  
Temperature range: -200°C to 1200°C  
Halogen free/flame-resistant/lead-free  
Customised Hybrid cables on demand

**HARNESS MAKING, ASSEMBLING, MACHINES AND TOOLS**

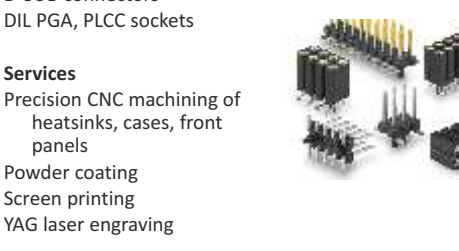
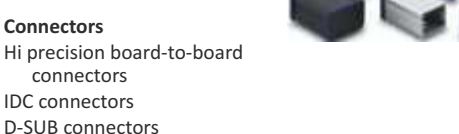
**Harness making**  
Crimping all typical connectors, half or full automatic process  
Cutting and stripping  
from AWG32(0,05 mm²) up to AWG8 (8,00 mm²)  
Lead free tin plating

**Machines for:**  
Benchtop Crimping & Stripping  
Cutting to Length & Stripping  
Full Process Crimping  
Marking  
Prefeeding  
Coiling/Collection  
Spare parts

**Cases**  
Miniature aluminum cases  
Combination cases  
Desk consoles and shell cases  
19" system cases

**Connectors**  
Hi precision board-to-board connectors  
IDC connectors  
D-SUB connectors  
DIL PGA, PLCC sockets

**Services**  
Precision CNC machining of heatsinks, cases, front panels  
Powder coating  
Screen printing  
YAG laser engraving



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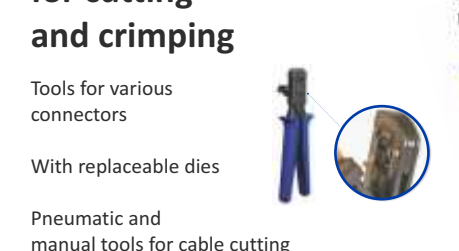
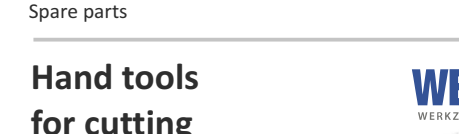
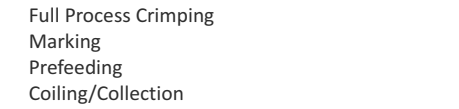
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### ELECTROMECHANICAL

**Wire to PCB connectors**  
PCB to PCB connectors  
Wire to wire connectors  
Jumpers  
Memory cards and PCMCIA connectors  
Serial, parallel, USB  
Wide range of terminals  
Strips and cables  
Customized harness

**HARNESS MAKING, ASSEMBLING, MACHINES AND TOOLS**

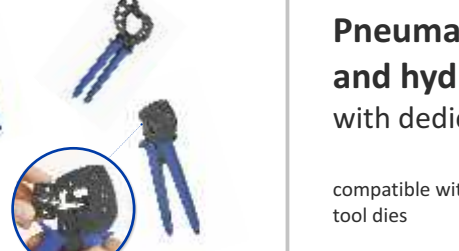
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### ELECTROMECHANICAL

**Automotive connectors**  
RAST connectors 2.5 and 5.0  
Chain terminals 2.8-4.8-6.3-7.7-9.3mm  
Ring tongue and other solderless terminals and splices  
Tools

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LIGHTING PRODUCTS

**LG Innotek**

**POWER LED** - super bright power LEDs. Efficacy up to 170lm/W. Industry standard 3535 package. CRI 70 for streetlighting, 80 as standard and 90+ available.

**Horticulture** dedicated red, blue and green colors in 3W and 6W

**MID POWER LED** - SMD LEDs in standard form factors: 5630, 3030, 3528

5630(G7) LED efficacy up to 220lm/W (@65mA)

High flux or high efficacy 3030 packages

3528 available in various lm/\$ versions also in highly reliable and efficient Flip Chip versions

**COB** - from 6W up to 170W standard sized modules (13, 19, 28 mm edge), with up to 23500lm per array, and 160lm/W. Available in lateral and in Flip Chip versions

**UV LED** - Low, mid and high power packages. Up to 300mW in UV-C, 100mW in UV-B and 6.2W in UV-A. UV-B and UV-C wavelengths available in the same form factor (6060)

**SEOL SEMICONDUCTOR**

**ACRICH3** - the third version of Seoul's proprietary solution. Supplied directly from 230VAC. Luminous flux of one module up to 11500lm (105W module), and high efficacy.

Modules available in many sizes for different applications.

Possibility to buy Acrich drivers.

**Wicop2** WICOP2 - new phosphor-on-chip power LED- small size, high power density and low thermal resistance

**TAIWAN SEMICONDUCTOR**

**High quality semiconductors available with AECQ-101 certificates**

Transient Voltage Suppressors (up to 3000W)

Zener and switching diodes

Rectifier diodes

Schottky diodes

Rectifier bridges

ESD diodes and arrays

BJT transistors

MOSFET transistors

Transoptors

Linear and switching voltage regulators

Amplifiers and comparators

Voltage references

LED drivers: DC boost, DC buck, Current Regulator

**Historical standard and future packages:** 0201, 0402, 0603, 0805, 1005, 1206, 2510, SOD-923F, SOD-723F, SOD-523F, SOD-323F, Micro SMA, SOD-123, SOT-323, SOT-363, SOT-23, SOT-25, SOT-223, Sub SMA, SMB, SMC, SMPC, SMPC 4.0, PDFN33, PDFN56, TSSOP-8, SOP-8, D-PAK, D2-PAK, MBS, ABS, DBLS and many others

**Industry standards:** 78(9)xx, 78(9)Lxx, LM317, LM339, LM358, LM431, LM810, SMAJ, SMBJ, SMCJ, P4KE, P6KE, 1.5KE, BAV, BAS, BAT and many others

**BRIGHTTEK**

**Taiwanese cost-effective LEDs**

Wide portfolio of signalling LEDs

Double color (warm + cool) power LEDs

Standard form factors

Ultraviolet (UV) LEDs

Infrared (IR) LEDs

Aluminium and ceramic COBs

Power LED matrix modules

Ready modules

High efficacy EMC packages (over 150lm/W)

**EPSON** EXCEED YOUR VISION

**Timing and Sensing quartz based devices**

**Crystal units** kHz Range MHz Range

**Oscillators** SPXO kHz & MHz range TCXO VCXO SAW Oscillators

**SAW Filters**

**RTC Modules**

**Gyro sensors**

**Programmable Oscillators** [epson.microdis.net](http://epson.microdis.net)

Customer specified frequency (1.000MHz to 166.000MHz)

Customer specified logic (5V, 3.3V, 2.5V, 1.8V)

10 sizes available including THT, SMD plastic package or SMD ceramic package

**Available within 24h from stock!**

**QUARTZ+MEMS** More Choice. More Options. More Solutions.

QMEMS is a combination of 'Quartz', a crystal material with excellent characteristics such as high stability and high precision, and "MEMS" (a microfabrication technology). To a semiconductor MEMS material, EPSON applies precision microprocessing based on quartz material to create a quartz device called 'QMEMS' which offers high performance in a compact package.

**Customized solutions & accessories**

LED modules: square and round modules in different sizes

Modules based on Wicop2 LED

LED strips

Ultraviolet (UV) LEDs

Infrared (IR) LEDs

Aluminium and ceramic COBs

Power LED matrix modules

Ready modules

High efficacy EMC packages (over 150lm/W)

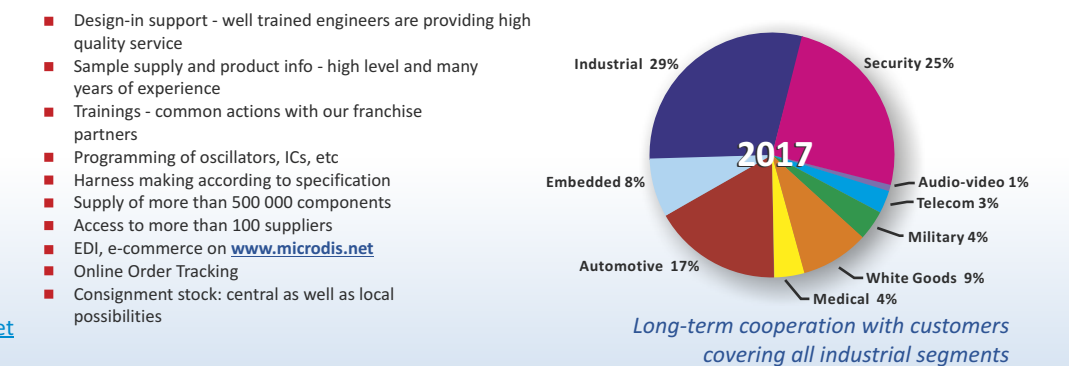
Design support and contract manufacturing

**Microdis** Innovation & Reliability

- Bulgaria** [Bulgaria@microdis.net](mailto:Bulgaria@microdis.net)
  - Croatia** [Croatia@microdis.net](mailto:Croatia@microdis.net)
  - Czech Rep.** [Czech@microdis.net](mailto:Czech@microdis.net)
  - Estonia** [Estonia@microdis.net](mailto:Estonia@microdis.net)
  - France\*** [France@microdis.net](mailto:France@microdis.net)
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  - Turkey** [Turkey@microdis.net](mailto:Turkey@microdis.net)
  - Ukraine** [Ukraine@microdis.net](mailto:Ukraine@microdis.net)
  - Other countries** [microdis.de@microdis.net](mailto:microdis.de@microdis.net)
- \*Electromechanical Competence Center for France



**SERVICES FOR OEMS AND CEMS IN EASTERN EUROPE**



Supply of small quantities by catalogue distribution

**Microdis** Distribution & support

- Wireless** GNSS, GSM, UMTS, LTE, BLUETOOTH, WIFI, ISM, modules, antennas & accessories
- E-mech** Enclosures, heatsinks, connectors, harnesses, switches
- Semicon** Transistors, diodes, ICs, quartzes and oscillators
- Epson shop** Configure, program and buy your oscillator on-line [epson.microdis.net](http://epson.microdis.net)
- Embedded** Industrial fanless PCs, All-in-one panels, embedded boards, displays with touchscreen
- Lighting** Low, mid and high power LEDs, COBs, LED modules, drivers and lenses
- Harness making & tools**

**One Stop Shop** Comprehensive portfolio with millions of components. Reliable source for high volume production, as well as for few pieces prototyping

Find us on [www.facebook.com/MicrodisElectronics/](https://www.facebook.com/MicrodisElectronics/)

The leading technical distributor of electronic components acting in Eastern Europe.

With years of experience and built up trust on the market.

Reliably providing local logistic and technical support to the most demanding applications.

**MICRODIS BUSINESS MODEL**

- Franchise Distribution for a selected number of manufacturers
- Special Mass Market Distribution by Internet and Catalogue
- Network Partnership with suppliers and customers

Sales network covering all East European markets

**DEVELOPMENT STEPS OF THE MICRODIS ELECTRONICS GROUP**

- 1989 Foundation of the companies in Hungary and Germany
- 1990 Foundation of sales companies in Poland and Slovakia
- 1992 Foundation of LSB Electronics later renamed to Microdis Plus Poland. Restructuring from retail to distribution
- 1993 Foundation of Microdis KFT in Hungary
- 1995 Consolidation of all companies within the Eurodis Microdis Holding AG in Switzerland (60% Eurodis [later Eurodis Electron PLC] and 40% Microdis). Foundation of a subsidiary in Czech Republic
- 2000 Europartners Consultants proclaimed Eurodis Microdis No. 1 in Poland and No. 3 in Hungary. Start of catalogue distribution
- 2003 Microdis sells its 40% shares of the Eurodis Microdis Electronics AG to Eurodis Electron PLC and takes over entirely Eurodis Microdis Electronics in Germany
- 2006 Microdis obtained ISO 9001:2000 Certification
- 2008 Foundation of Microdis in Latvia
- 2009 Foundation of Microdis in Bulgaria
- 2010 Microdis Group obtained ISO 9001/2008 Certification
- 2011 Foundation of Microdis Components Elektronik in Turkey (Istanbul)
- 2012 Purchase and Customer Service moved to the acquired building in Hockenheim, Germany
- 2013 Inauguration of Electromechanical Competence Center for France, in Sarrebruck
- 2014 25 years of Microdis' Innovation and Reliability on the market
- 2017 Official opening of our property in Zerniki Wroclawskie, Poland. Relocation of Microdis Logistic Center to our new building

**Microdis** Innovation & Reliability

**ADVANCED EDI SYSTEM**

- Access to components base with individual, quantity dependent, pricing
- Stock information
- Downloadable file with components base
- On-line ordering
- Order status and order/invoice history information
- Individual account for each employee

