



Mobile Computing

ecom
instruments

mobile experts



Intrinsically Safe PDA i.roc[®] Ci70 -Ex
A new Paradigm in Intrinsically Safe Mobile Computing



Intrinsically Safe PDA i.roc® Ci70 -Ex with ATEX / IECEx Zone 1/21 and Class I, II, III, Division 1 approval

- 1 The unique modular concept of the i.roc® Ci70 -Ex combines state-of-the-art technology with a flexible, modular head system for all kinds of data acquisition systems: (LF, HF and UHF RFID with 1D Barcode Laser Scanner and 2D Multi-Range Barcode Imager)
- 2 The world's only PDA with global explosion protection approval for ATEX / IECEx Zone 1 and NEC Class I, Division 1, combined in a single device
- 3 The world's first Zone 1 and Class 1, Division 1 certified PDA with wide-area radio (WWAN 3G UMTS and CDMA)
- 4 The world's only Zone 1 and Class 1, Division 1 certified handheld computer with complete WLAN standard (IEEE 802.11 a/b/g/n)

The i.roc® Ci70 -Ex is the latest development in ecom's successful i.roc® series and, at the same time, the first PDA to have been jointly developed in conjunction with Intermec. Its global certifications and worldwide ecom Support Service make it a fully deployable product solution to ensure maximum productivity at all times.



Mobile computers for use in potentially explosive environments often constitute a compromise as they cannot use the latest technologies. Intermec and ecom have therefore collaborated to produce and launch a state-of-the-art, intrinsically safe handheld computer solution.



Approvals

In addition, the i.roc® Ci70 -Ex combines the widest range of global approvals for use in hazardous environments, from ATEX through IECEx to NEC, so that the use and integration of different devices on different continents is no longer required.

Therefore it defines the new industry standard for intrinsically safe mobile computing.



The modular head design

Using a unique modular design, the i.roc® Ci70 -Ex can be specifically configured to the customer's requirements by selecting different head modules. When requirements change, the head module on the unit can be replaced or enhanced by the ecom Service Center.

In addition to a traditional 1D Barcode Laser Scanner with high motion tolerance as well as Radio Frequency Identification (RFID) technology with the main frequency ranges (LF, HF or UHF), an intrinsically safe version of a 2D Multi-Range Barcode Imager is now available for the first time.

The i.roc® Ci70 -Ex has the latest near and far scanning technology.

Thanks to the space-saving and form-integrated head modules it provides an ergonomic design, balance and extreme ruggedness. This is instead of a traditional approach using an attached housing or SnapOn module, which may come loose or has to be charged separately.

The structural unit with the basic housing of the PDA also ensures the stability and ruggedness of the head module.





Head module	Function	Description	Typical applications	Range
1D Laser Barcode Scanner: SN-SE955		Cost-effective solution for all common 1D barcodes even under the most extreme conditions.	Warehouse and logistics Asset tracking Product and equipment identification	10 cm to 90 cm
2D Multi-Range Barcode Imager: EN-EX25		The self-adjusting 2D imager lens allows a wide range of applications for both near and far range. Automatic read correction enables barcode scanning even through safety glass.	Warehouse and logistics Asset tracking Product and equipment identification	15 cm to 15 m
LF RFID Reader (AirCoil): NL-TLB30		Rugged 125/134 kHz reader with Aircoil antenna. Well-suited for reading / writing RFID tags even on metal. Water-resistant and resistant to electromagnetic fields.	Equipment identification Asset and Inventory Management	up to 10 cm
LF RFID Reader (Ferrite): NF-TLB30		Like NL-TLB30, but with Ferrite antenna. Optimized for reading glass transponders.	Equipment identification Asset and Inventory Management	up to 10 cm
Trovan RFID Reader NT - LID		Very robust 125 kHz reader using the patented TROVAN-protocol. Unprecedented readability near metals; transponders can be attached to metals, even flush-mounted in metals. Resistance to electromagnetic interference.	Access Control, Asset and Inventory Management, Gas cylinder tracking	up to 10 cm
HF RFID Reader: NH-UNI13		13.56 MHz reader with internationally recognized RFID technology and internationally standard frequency. Supports ISO 15693, ISO 14443 etc. Ideal for applications in which the transponders not only have to be read, but also written.	Physical access control Product identification	up to 10 cm
UHF RFID Reader: NU-T80		Latest high performance RFID technology. Ideal for applications where longer read ranges are required.	Warehouse and logistics	1 cm to 80 cm
Single Cap		Housing cover only. However, head modules can be added at any time.		

- Multi-core OMAP processor - 1 GHz
- 512 MB RAM, 1 GB flash memory
- Windows Embedded Handheld 6.5.3
- WWAN: 3G UMTS / CDMA
- WLAN: 802.11 a/b/g/n
- Bluetooth: 2.1 EDR
- IrDA infrared interface
- A-GPS
- Attitude sensor
- Brilliant 3.5" VGA display - rugged Gorilla Glass® with backlight and touch panel
- Long service life due to ruggedness and wear-resistance

CERTIFICATION

ATEX

- Ⓢ II 2G Ex ia IIC T4 Gb IP64
- Ⓢ II 2G Ex ia IIIC T135°C Db IP6x

Mining

- Ⓢ I M1 Ex ia I Ma



IECEX

- Ⓢ ia IIC T4 Gb IP64
- Ⓢ ia IIIC T135°C Db IP6X

Mining

- Ⓢ ia I Ma



North America (USA / Canada)

- Class I Division 1, Groups A, B, C, D T4
- Class II Division 1, Groups E, F, G T4
- Class III

Class I Zone 1 IIC T4 – Protection Method:

- North America (USA): AEx ia IIC T4 Gb
- North America (Canada): Ex ia IIC T4 Gb

- Class II Zone 21 IIIC T135°C – Protection Method (USA):
- AEx ia IIIC T135°C Db



Flexibility

The optional WWAN module combines both mobile standards UMTS and CDMA in a single version. This also means maximum flexibility for international companies.

The devices can be used worldwide as the built-in WWAN module supports all standards.

GSM/UMTS/CDMA/GPS

The i.roc® Ci70 -Ex constitutes the only solution for Zone 1/21 and Class I, II, III, Division 1 that combines all wireless networking (WWAN, WLAN and Bluetooth 2.1) in a single device. This allows fast data exchange across different networks even where coverage conditions are difficult.

Depending on the user's location due to the on-the-fly selection function, the i.roc® Ci70 -Ex is able to dial into the respective networks, thus ensuring continuous network coverage.

WLAN: 802.11 a/b/g/n

Approved for Zone 1/21 and Class I, II, III, Division 1, the i.roc® Ci70 -Ex is the only handheld computer that offers the WLAN standard n, enabling integration of the i.roc® Ci70 -Ex in all WLAN environments with 2.4 or 5 GHz.

The n-standard increases the signal range and hence network coverage as well as offering the highest data transfer rates.



Windows Embedded Handheld 6.5.3

Thanks to a resistive touch display, Windows Mobile™ 6.5.3, the latest standard for industrial PDAs, can be navigated using a stylus or fingers even in humid or wet conditions or when wearing gloves.

INMETRO (Brazil)

- Ⓢ ia IIC T4 Gb IP64
- Ⓢ ia IIC T135 °C Db IP6X





Intermec platform

The i.roc® Ci70 -Ex is based on the successful CN70e platform. For this reason the i.roc® Ci70 -Ex is fully compatible with development tools and applications from the Intermec Development Library and easy to integrate in an environment of devices of the existing 70 series from Intermec.



This also has advantages when maintaining various PDAs as there is no need to distinguish between the individual devices. This allows effortless management of devices.

In contrast to the CN70e, the i.roc® Ci70 -Ex:

- is intrinsically safe
- has various head modules for data acquisition, which allows flexible use.

System integration

Intermec SmartSystems™

For seamless, intelligent integration into your workflow, functions such as **SmartSystems™** installation and ScanNGo clients are available from Intermec.

These functions can be used for configuration or installation in advance or carried out locally, for example by scanning a barcode to ensure usability.

The devices can also be provided with the required configuration at the customer's request.



Intermec SmartSystems™ enables easy and efficient maintenance of all systems of a company by allowing administrators to manage PDAs, including the i.roc® Ci70 -Ex, from a web portal and to install operating system and software updates online. This means that the devices can remain on-site at all times, even when the software is being updated.



Ruggedness

Due to its rugged construction, the i.roc® Ci70 -Ex is ideally suited for mobile applications requiring compact design without compromising on technology. The i.roc® Ci70 -Ex was developed with consideration for all the adversities of everyday work of its users. Extreme weather conditions or drops from distances of up to 1.2 m (4 feet) are no problem thanks to its special design as well as gas and dust certification.



Durability

A durable display protected by Gorilla Glass® and laser-cut, high wear-resistant keypad buttons complete the excellent user experience:

- permanent readability of the laser-cut buttons
- display readable in all lighting conditions and rain
- eliminates or minimizes downtime such as repair times
- increases PDA service life, thereby reducing TCO (total cost of ownership)



Power management & battery

Innovative power management and lithium-ion technology of the batteries ensure extremely long operating times of at least 10 hours - sufficient for a full workday. Charging spare batteries during the shift is no longer required.

If the battery is not fully charged and fails during a shift, the device can be equipped with a spare battery in non-hazardous areas at any time.

To eliminate confusion between standard and intrinsically safe batteries, ecom has ensured by mechanical means, that only intrinsically safe batteries can be used.

Industries that require devices certified for hazardous areas

More than 60% of manufacturers are in need of intrinsically safe devices including: oil & gas, chemical and pharmaceutical industries, but also textile, cosmetic, aerospace, automotive, food, agricultural, mining and munitions industries - just to name a few.

Typical types of locations where gases are present include:

- Petroleum drilling platforms, refineries, gasoline storage and dispensing areas
- Dry cleaning plants where vapors from cleaning fluids can be present
- Aircraft hangars and fuel servicing areas
- Utility gas plants, and operations involving storage and handling of liquefied petroleum gas or natural gas
- Cosmetic and Pharmaceutical plants
- Chemical and Paint plants

Typical types of locations where combustible dusts are present include:

- Grain elevators
- Flour and Feed Mills
- Plants that manufacture, use or store magnesium or aluminum powders.
- Producers of plastic, medicines and fireworks
- Producers of starch or candies
- Spice-grinding plants, sugar plants and cocoa plants
- Coal preparation plants and other carbon handling or processing areas



When using the i.roc® Ci70 -Ex, many of our customers obtain a full return on investment within only a few months.

- Reduces paperwork and shortens office working hours by direct processing and availability in the ERP system or similar.
- Reduces inspection times by up to 30%
- Improves data quality and reduces error rates



Accessories*

A large selection of peripherals and accessories underlines the flexibility and adaptability of the i.roc® Ci70 -Ex.



* All accessory components can be viewed in our Product Guide.



Docking station

The Dual and Quad Docks are used to charge the device battery. USB functionality is added to the Single Dock.

The various cups and base docks make them fully customizable.



Keypad

The i.roc® Ci70 -Ex comes with a QWERTY keypad for regular text input or a numeric keypad with large function keys.

A sensor measures the ambient light and adjusts the keypad backlight accordingly. In this way, readability is guaranteed even in poor light conditions.



Numeric Keypad



QWERTY Keypad

Pistol grip



The pistol grip can be easily attached to the housing as required. The handle expands the functions and applications through its ergonomic design.



Not only before and during, but particularly after the sale and during the daily use of our products, it is crucial that you rely on our mobile devices each and every day.

To ensure this, ecom will provide you with professional assistance and customer care worldwide.



Service contract

By signing up for our **ecomprehensive** service package, we offer you a guaranteed turnaround time of five working days at our worldwide ecom Service Centers in Germany, United States of America and Singapore

- free servicing as part of the service contract
- predictable costs
- minimal downtime
- professional solutions with the guarantee you need.





Applications

Process reliability is essential for product quality to be maintained allowing all processes to be carried out according to precise specifications. The i.roc® Ci70 -Ex, with a direct link to an ERP system via WLAN or UMTS, offers the ideal solution. Processes can be supported, controlled and documented in real-time from stock removal through to the production line and to the warehouse.



Asset & Life-Cycle Management

The i.roc® Ci70 -Ex can be used to configure, control and monitor system components and field devices via a wireless connection.

During downtime or in the event of system errors, cancellation or breakdown expenses can occur. The freedom of movement and flexibility will make work easier and also improve both production and maintenance.

In summary, this ensures effective systems management, optimal process execution and reduced downtime.



Maintenance and systems service

Based on an adequate round-trip software, a route is created within the system that the field worker covers on his regular round with the i.roc® Ci70 -Ex.

The system components (e.g. individual valves) can be identified by means of RFID or barcode and checked against exact specifications.

The results are then available online or per synchronization after completion of the round. Information on critical conditions and the resulting steps help to effectively reduce downtimes.



Warehousing and logistics

The i.roc® Ci70 -Ex uses barcodes and RFID to quickly and accurately detect and identify goods in warehouses, on trucks and in cars.

The 2D Multi-Range Imager reads barcodes up to 15 m (49 ft) away and eliminates walking unnecessary distances and regular stooping or bending for employees.

The direct data connection via WLAN or WWAN keeps the ERP system continuously up to date.



Security through personal identification

In certain situations, it is important to locate employees. For example, thanks to integrated GPS, injured users can be located which allows rescue teams to reach them in hazardous areas more quickly to provide the necessary aid.

Technical Data	
Physical Characteristics	incl. battery weight approx. 900 grams (2 pounds) 225 x 85 x 58 mm (8.8 x 3.3 x 2.3 inches) (standard configuration) 249 x 85 x 58 mm (9.8 x 3.3 x 2.3 inches) (with optional head module)
Environmental	Operating Temperature -20 °C ... +50 °C (-4 °F ... +120 °F) Storage Temperature -20 °C ... +60 °C (-4 °F ... +140 °F) Drop Specifications 1.20 m (4 feet) according to MIL-STD-810G at -20 °C and +50 °C (-4 °F and +120 °F) Electrostatic Discharge +/- 8 KV contact discharge and +/- 15KV air discharge Rain and Dust Resistance IP65
Power	Battery 3.7V, 4,000 mAh · IEEE 1725 compliant · Li-Ion · swappable
Operating System	Windows Embedded Handheld 6.5.3
Processor	OMAP 3715 Multi Core Processor 1GHz
Memory and Storage	512 MB RAM, 1 GB Flash Memory, Customer-accessible microSD slot for removable memory cards up to 32 GB
Display	3.5 inches, VGA (480 x 640 pixels), 65,536 colors, ambient light sensor, LED backlight, transmissive TFT-LCD touchscreen display, highly durable due to Gorilla Glass®
Interfaces	USB – Full Speed 2.0 Client · IrDA
Wireless LAN	IEEE 802.11 a/b/g/n · IEEE 802.11d · Security: WPA2, WEP, TKIP, AES; Authentication OPEN, SHARED-KEY, PEAP (MS-CHAP V2, Generic Token Card (GTC), MD5), TLS, TTLS (PAP, CHAP, MS-CHAP, MS-CHAP V2, PAP/Token Card, EAP with GTC), LEAP, FAST · Cisco CCXv4 compliant
Wireless WAN	3G WWAN for data communications: UMTS/HSDPA/HSUPA (14.4 Mbps D/L, 5.76 Mbps U/L peak); Frequencies: 850, 900, 1800, 1900 MHz CDMA/EV-DO Rev A (3.1 Mbps D/L, 1.8 Mbps U/L peak); Frequencies: 800, 850, 1900, 2100 MHz GSM, GPRS, EDGE; Frequencies: 850, 900, 1800, 1900 MHz
Bluetooth	Class II, Version 2.1 + EDR · Operating Channels: 0 - 78 (2402 - 2480 MHz) · Data Rates 1, 2, 3 Mbps
GPS	A-GPS
Audio	Loudspeaker · Bluetooth headset support · VOIP audio support via headset
Sensor Technology	Accelerometer: Enables automatic or application-specific features
Head Options	2D imager, 1D laser scanner, HF RFID, LF RFID, UHF RFID
Keyboard	Backlit numeric or alpha numeric · laser etched hard keycaps
Regulatory Approvals and Conformity	Safety: 60950-1 EMC: FCC, CE Laser: IEC/EN 60825-1 Class 2 Environmental: WEEE, RoHS Radio: FCC, CE Battery: UL 1642, IATA
Certification	<div> ATEX Ⓢ II 2G Ex ia IIC T4 Gb IP64 Ⓢ II 2G Ex ia IIIC T135°C Db IP6x Mining Ⓢ I M1 Ex ia I Ma </div> <div> IECEx Ⓢ ia IIC T4 Gb IP64 Ⓢ ia IIIC T135°C Db IP6X Mining Ⓢ ia I Ma </div> <div> NEC North America (USA / Canada) Class I Division 1, Groups A, B, C, D T4 Class II Division 1, Groups E, F, GT4 Class III Class I Zone 1 IICT4 – Protection Method: North America (USA): AEX ia IICT4 Gb North America (Canada): Ex ia IICT4 Gb Class II Zone 21 IIIC T135°C – Protection Method (USA): AEx ia IIIC T135°C Db </div> <div> INMETRO Brazil Ⓢ ia IIC T4 Gb IP64 Ⓢ ia IIIC T135°C Db IP6X </div>

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