IDRA

Draft

IDRA INJECT COMPUTER III

Supervisor system for IDRA Die Casting Machines

Inject Computer III

SELLING PREPOSITIONS

«More technology at the same price»

Speed

Fast page changing speed
Integration of «state of the art» high speed fieldbus (profinet)

Stability and data corruption

Avoid archive corruption (MS Access MDB files)
Avoid main database corruption

User friendly

Enhanced display
Remoted USB
Physical data color identified
Symbolic data in operator archive
More powerful production statistic
More powerful stops statistic
Touchscreen
More informations on the screen
Symbol navigation

3D diagnostic

Best machine representation for failure identification (3D based)

Other features

Connectors for new PCI-Express boards
All-in-one system (main supervisor acquires and controls shot traces)
Compatibility with Inject Computer II
Avoid old languages and old DLL/OCX compatibility problem
Page versioning

Speed

HIGH PAGE CHANGING SPEED

New ICONICS supervisor, fully based on x64 technology provides a very high speed in changing the pages. Speed has been improved using caching mechanism. To maximize the speed the communication software (OPC) is now on the PLC, the communication is based on an ethernet link, and we integrated the new OPC UA technology.

NEW FIELDBUS (profinet)

On Inject computer II we have a profibus board on the PC. The software managing the communication runs on the supervisor. On Inject Computer III the communication uses the ethernet port of PC and the communication software is ON THE PLC. Result is a very high speed in representing data

Stability and data corruption

AVOID ARCHIVE CORRUPTION

Archives (alarms and events) are moved from MS Access MDB format to a Microsoft SQL Server. One instance of MS SQL server Express is available on the system.

AVOID MAIN DATABASE CORRUPTION

We are using Sybase SQL Anywhere v.10 since 2 years with no problem of corruption on data (some cases on the old architecture based on Sybase v.8). In any case new database will be Sybase ASA 12.

User friendly

ENHANCED DISPLAY

New 18.5” wide TFT LED display. In our research, 18.5” and 21.5” wide, LED backlighted, will be the standard for displays in next future.

The display has 0.2 mm glass protection against scratches.

Using a bigger display we can show more information in each screen

PHYSICAL DATA COLOR IDENTIFIED

On IC3 each color represent a physical quantity:

Yellow = strokes

Blue = pressure

Green = speed

Purple = programs

Etc.

Color is inverted to represent the setpoint or the real value

USB REMOTED

If remote panels will be present, USB port will be available on the remote panels

User friendly

SYMBOLIC DATA IN OPERATOR ACTIONS ARCHIVE

The new archives, based on SQL Server allow us to have the translations from native (S7 syntax) to symbolic data in operator actions archives.

POWERFUL STATISTIC

A new powerful statistic for both stops and production will be integrated.

TOUCHSCREEN

The display has touchscreen capability.

When the user touch a single point a numeric keypad or an alphanumeric keyboard will appear on the screen. A standard keyboard and a touchpad will be present in any case to overcame touchscreen failures. It is glass protected

MORE INFORMATION ON THE SCREEN

A lateral stripe will be present with all important information for the DCM in all pages. The alarm section on the bottom of the screen has been enhanced.

SYMBOL BASED NAVIGATION

Navigation between pages is now symbol-based.

3D diagnostic

3D MACHINE REPRESENTATION

The system can manage 3D drawings taken from CAD. 3D model will be animated to help user identify faults. 3D can be manipulated from the user: Pan, zoom, etc.

Other features

CONNECTORS FOR NEW PCI-Express BOARDS

On Inject computer III the only available bus is PCI – Express, to interface all new boards.

COMPATIBILITY WITH IC2

OPC Technology and Database technology used are compatible with IC2 systems. A network supervisor can acquire data from IC2 and IC3 in the same way.

INTEGRATION OF ACQUISITION SYSTEM (future enhancement)

The acquisition and contol system for injection data will be moved on the supervisor. The external acquisition system will be dismissed.

DLL/OCX COMPATIBILITY

The system is completely based on .NET technology, to avoid DLL/OCS compatibility problems. VBA has been dismissed. JSCRIPT has been integrated.

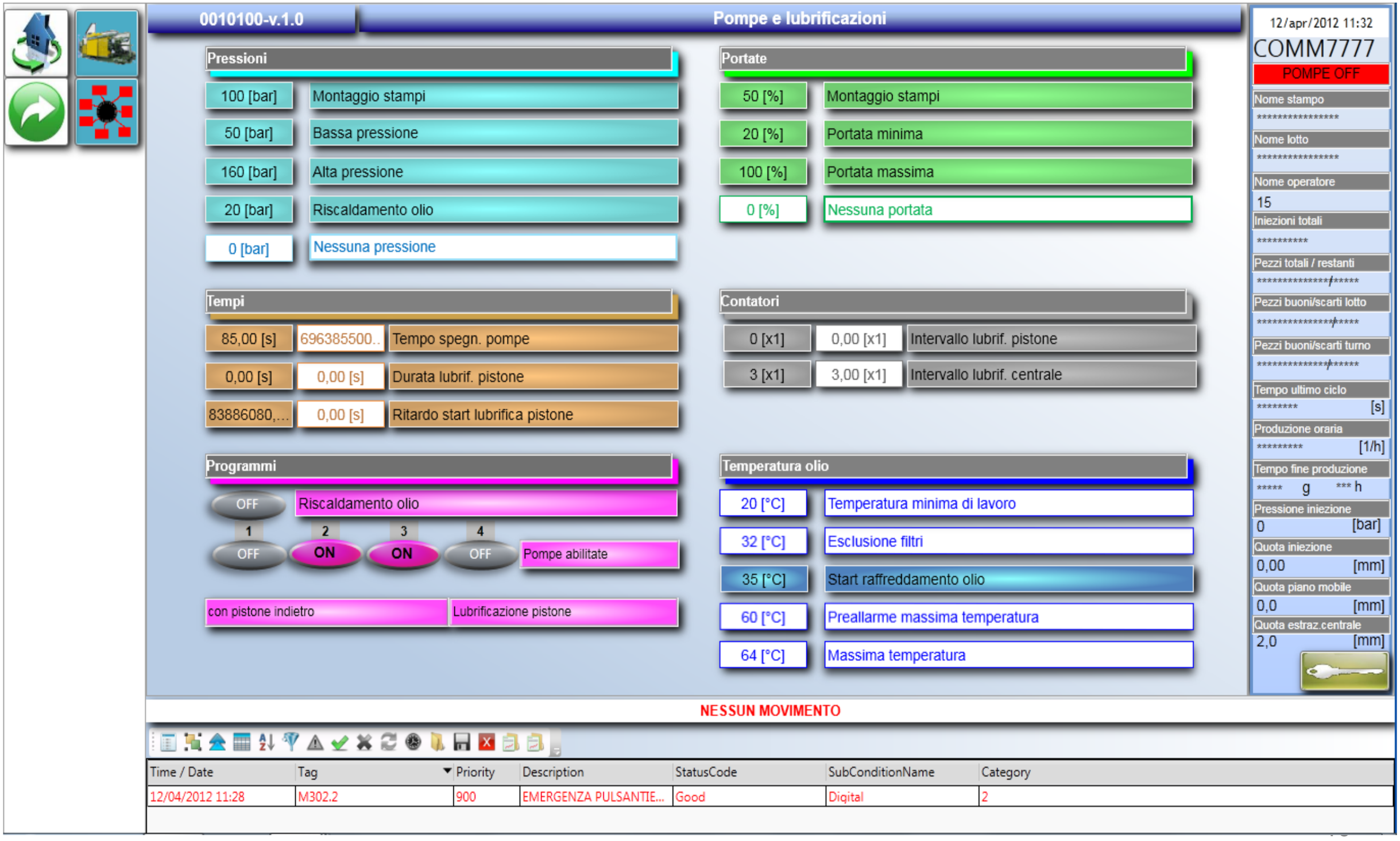
VERSIONING

Page versioning has been introduced. Page version is visible on the top of the page

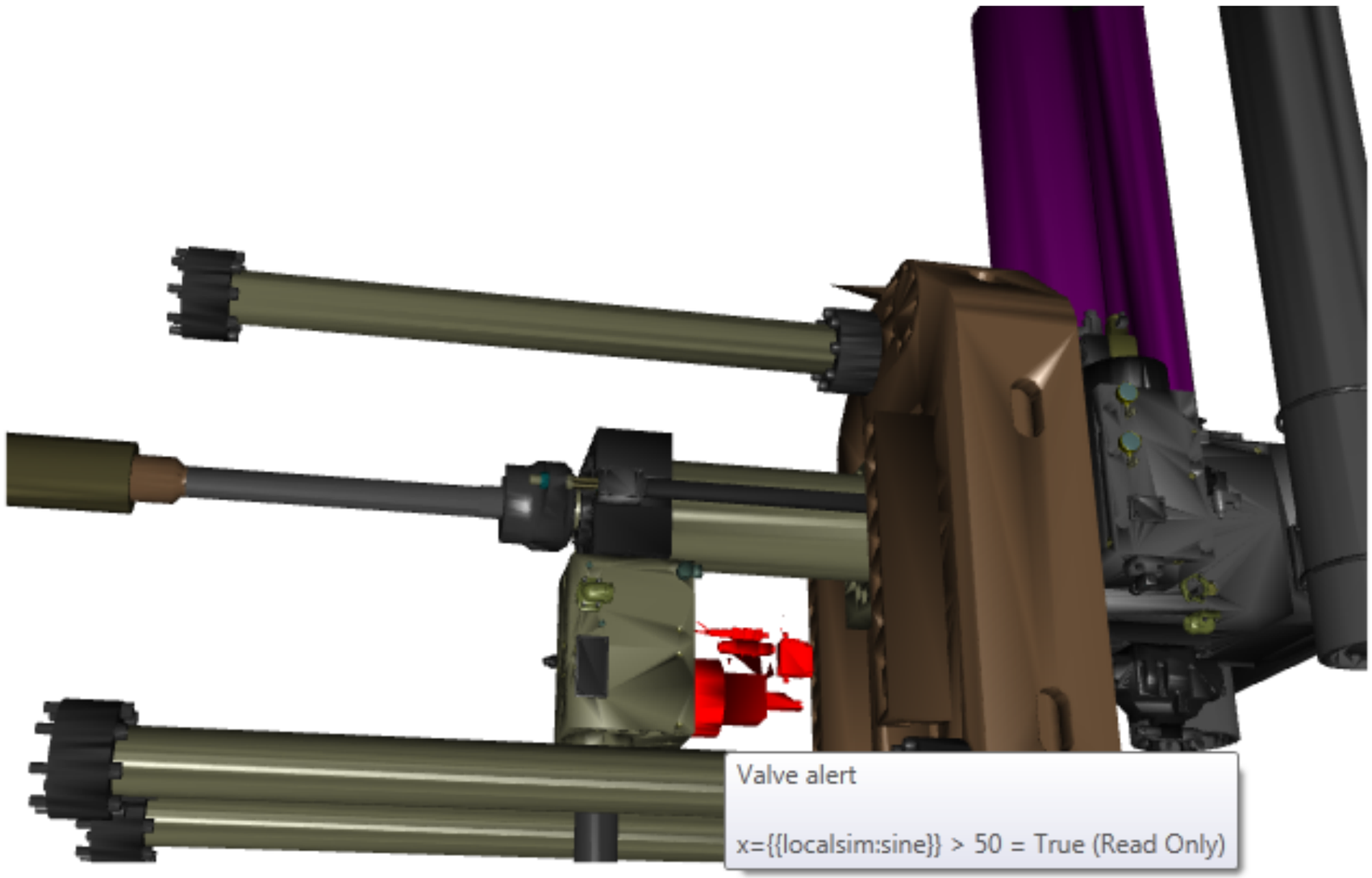
DIFFERENCES

IC2	IC3
Display = 15" TFT	Display = 18.5" TFT LED Wide
Processor = Core2Duo T7300	Processor = Intel i5
Memory = 4GB	Memory = 8GB
PCI bus	PCI express
Modem present	Modem not present
Windows 7 embedded P x32	Windows 7 embedded P x64
Iconics Genesis 9.2 (32 bits)	Iconics Genesis 10.7 (64 bits)
USB not remoted	USB remoted
Archives MDB based	Archives SQL Server based
Native syntax in operators log	Symbolic in operators log
COM based	.NET based
2D synoptics	3D synoptics

Standard page



3D Capability



Questions

- For any question please contact me:

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Appendices

HW Architecture Description

Summary:

Customized industrial PC for supervision
Industrial PC (diskless) with Real Time Operating System for injection data acquisition. (acquisition board from National Instruments)
Double Ethernet network connection
UPS integrated (APC) with real time diagnostic
Fault-safe. DCM can work without the IDRA Inject Computer III
2 SSD Hard Disk drives (1 MLC and 1 SLC) for a best performance and reliability
Teleservice with any kind of connection (LAN/WiFi network, G3 USB key)

Preliminary informations (to be tested)

Development in progress

Future enhancement

THE PC

- Industrial PC
- Windows 7 embedded x64 P release
- TFT 18.5” Wide 1366x768
- Touchscreen
- Dedicated keyboard
- RFID Login(HF band (13.56 MHz) ISO 14443A/B + ISO15693)
- 2 ethernet ports (100 Mbit/s)
- 2 Solid Disk Drive SSD
- IP65 protection
- OPC UA technology
- Cooling designed to supply uProcessor fan failure
- Very simple architecture (single motherboard)

HMI PC technical specifications

Motherboard Form Factor	Mini-ITX Motherboard (170 x 170 mm)
CPU	Intel® i5 processor / i7 processor
Memory	4GB DDR3 1066/1333/1600 SO-DIMM
Chipset	Intel® QM67 Express
Real Time Clock	Chipset integrated RTC with onboard lithium battery
Power Management	ACPI 3.0 compliant
PCI Enhanced IDE	4 x Serial ATA II interface up to 300MB/s 2 x SATA3 interface up to 600MB/s. Total 6 x SATA interface
VGA Interface	Integrated Intel® Core™ HD graphics Technology
Serial ATA Interface	3 x Serial ATA II Interface with 300 MB/s transfer rate.
Audio Interface	Realtek ALC888 HD Audio
LAN Interface	2 x Intel® 82574L Gigabit Ethernet

Injection Data Acquisition PC

- Intel® Atom™ 1.6 GHz onboard CPU
- PCI or PCI-E expansion slot
- Robust fanless enclosure
- 65mm height industrial case with heat dispersing fins
- -10°C to 55°C operating temperature with short burst overspec allowance
- 1GB DDR2 memory
- Dual 10/100/1000 Mbps LAN
- USB x 6, COM x 6
- CompactFlash Type I/II or SATA HDD support
- National Instruments high performance data acquisition board (8 analog voltage channels, differentials)

Data Acquisition SW

- Real time Operating System: Linux RTAI
- Sampling time up to 200 us (1 ms standard)
- «Black box» architecture, no program need
- NO FILTERING ON DATA! Real data on the screen!
- No needs to write on disk, no disk corruption
- 5 control zones, 3 standard
- Full possibility to customize some parameters for special needs

Parameters list (for each zone)
Minimum, Maximum, Average, Square dev. of speed
Minimum, Maximum, Average pressure
Stroke
Time
Minimum, Maximum, Average for each analog channel

Recovery and protection

- On a separate part of the disk there are the original image of HDDs. You can recover a fully crash in minutes (like your laptop, using recovery CD)
- After IC3 installation, C disk drive can be set as read-only using Microsoft EWF. No corruption will be possible. In any case an antivirus is installed with a 3-year subscription for virus protection.
- Only DB file will change during machine life. It is daily backupped on the Compact Flash.