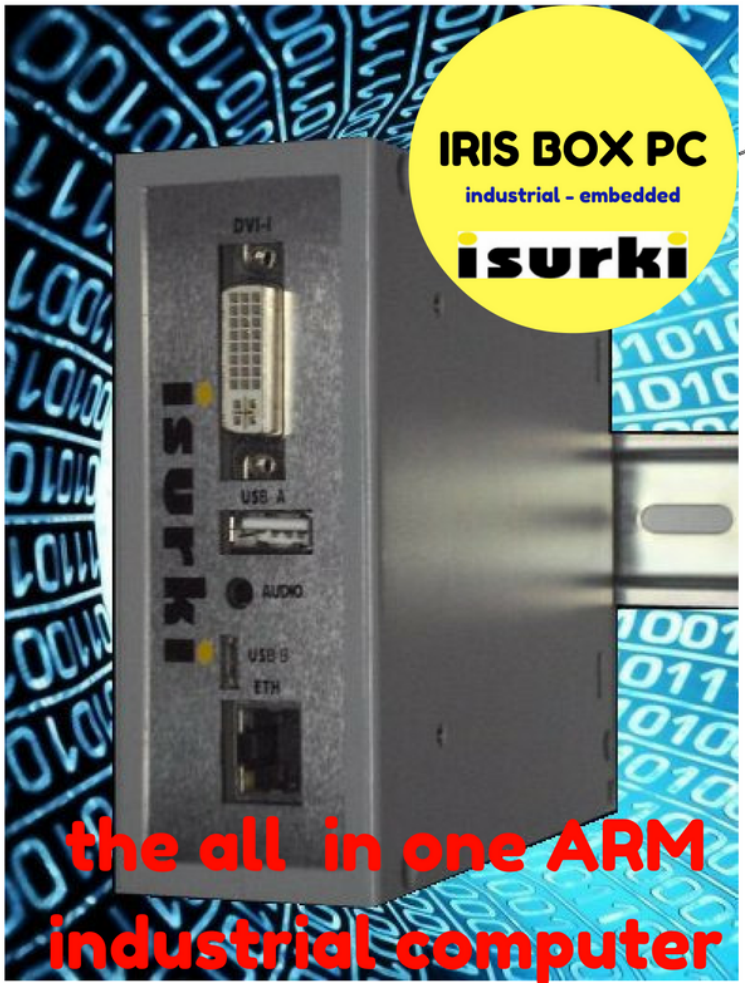
05/03/2017

IRIS Box PC



EMBEDDED INPUTS & OUTPUTS

USER TAILORED HARDWARE

plug & play

DIN RAIL MOUNTING

DETACHABLE CONNECTORS

LONG TERM AVAILABILITY

Intel XScale ARM 208 MHz

ARM Cortex A9 Dual Core 1GHz

RAM 64/ 512 MB DDR

Flash 128MB hasta 1 GB

DVI-I

1xHost 1xOTG

1 x 10/100

3 x RS232

24 GPIOs

Micro SD

RGB LVDS

fanless

1 x Irda

Line-In Line Out Mic-In

I²C BUS

6 - 27 Vdc

4 x PWM

1 x RTC

Compact 7 CE 5.0/6.0

Linux

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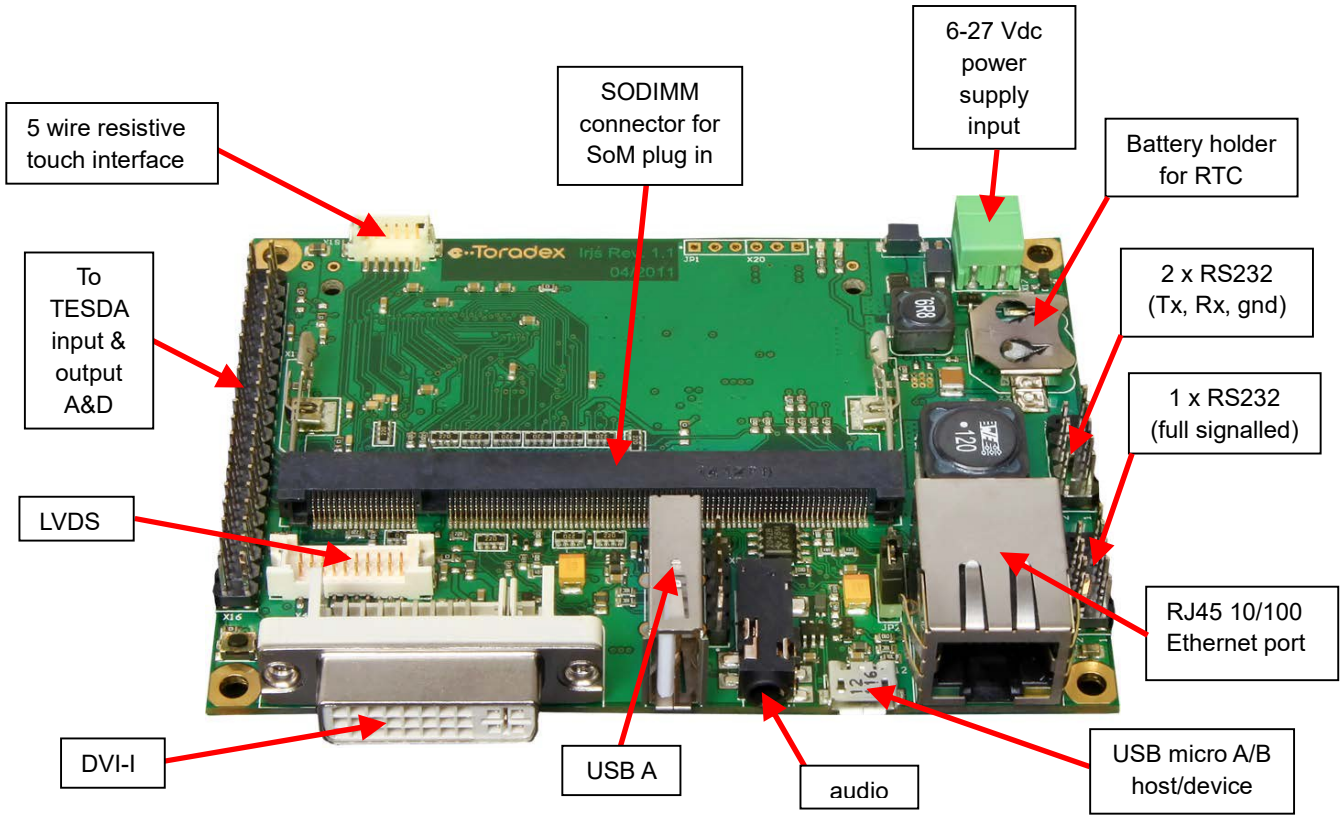
IRIS BOX PC[1] is a state of the art cutting edge industrial box computer, developed by **ISURKI** as the result of 25 years of expertise in the design and deployment of industrial control systems for the management of facilities, services and environmental control networks. **IRIS BOX PC** offers the maximum reliability, flexibility and performances, thus offering the most advanced control technology.

The most important **IRIS BOX PC** advantage lies in its modularity, allowing the user to adapt the final scope and composition of the station to his/her application requirements, throught out the selection of the hardware and software modules necessary to fit the project specifications.

Therefor, **IRIS BOX PC** is a tailored supplied product, with the open possibility of enhancing its features fitting future new requirements, just adding the required hardware and software modules.

Besides, the design, development and after sales technical assistance service offered by **ISURKI** warranty the implementation of specific automation, control and communications routines according to the project requirements, as well as their upgrading and maintenance.



IRIS BOX PC is based on the above shown Toradex® Iris carried board.

[1] As a result of a constant evolution, here in stated characteristics can be upgraded and changed without previous notice to customer. Please ask the last data sheet version contacting directly with our company.

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CPU

	Iris T30 (IT)	Iris T20 (IT)	Iris VF50/VF61
Processor	NVIDIA® Tegra™ 3 ARM Cortex™ –A9 Quad Core 1.4 GHz	NVIDIA® Tegra™ 3 ARM Cortex™ –A9 Dual Core 1.0 GHz	Freescale® Vybrid™ Cortex™ –A5 400 MHz / 500 MHz

Memory

RAM	1 GB DDR3L	256 MB / 512 MB DDR2	128 MB / 256 DDR3
Flash	4 GB eMMC	512 MB / 1 GB	128 / 512 MB

Multimedia

Display Controller	Dual Independent	Dual Independent	Single
Video decoder	DiVX 4/5/6, H.263, H.264, JPEG, MPEG-2, MPEG-4, WMV9 VC-1, XviD	DiVX 4/5, H.263, H.264, JPEG, MPEG-2, MPEG-4, VP6, WMV9 VC-1, XviD	-
2D / 3D Accelerat.	✓ / ✓	✓ / ✓	✓ / -
HDMI	V1.4, 1080p (1920x1080)	V1.3, 1080p (1920x1080)	-
VGA	1920 x 1200	1600 x 1200	-
RGB	2048 x 1536 / 24 bpp	1920 x 1200 / 24bpp	1024 x 768 / 24bpp
Resistive Touch	4 wire	4/5 wire	4 wire
Audio In/Out	2x / 1x	2x / 1x	- / -

Connectivity

External Bus	16 Bit	32 Bit	-
USB Host & Dev.	High Speed	High Speed	High Speed
I2C	3x + DDC	2x + DDC	4x
SPI	6x	6x	4x + 2xQSPI
One-Wire	1x	1x	-
SDIO/SD/MMC	3 x 4 bit	2 x 8 bit	2 x 4 bit
UART	5x	5x	5x
IrDA	1x	1x	1x
PWM	4x	4x	17x
GPIOs	Up to 158	Up to 153	Up to 101
Analog inputs	4x (12 bits)	4x (12 bits)	16x / 12x (12 bits)
Ethernet	10/100 Mbit	10/100 Mbit	10/100 Mbit IEEE1588
Camera Parallel Interface	1x	1x	1x

Software

Supported operative systems	Windows Embed. Comp. 7 Windows Emb. Comp.2013 Embedded Linux Android (supported by 3rd party)	Windows Embed. CE 6.0 Windows Emb. Compact 7 Embedded Linux	Windows Embedded CE 6.0 Windows Emb. Compact 7 Windows Emb. Comp. 2013 Embedded Linux
Preinstalled OS	Win Embedded Compact 7	Win Embedded Compact 7	Windows Embedded CE 6.0

Others

Temperature	0º to 70º C IT: -40 to 85º C	0º to 70º C IT: -40 to 85º C	0º to 70º C IT: -40 to 85º C
Consumption	1.4 - 5.1 W	1.1 - 2.8 W	0.5 - 0.8 W
Minimum availability	2025	2025	2028

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CARRIER BOARD CONNECTIVITY

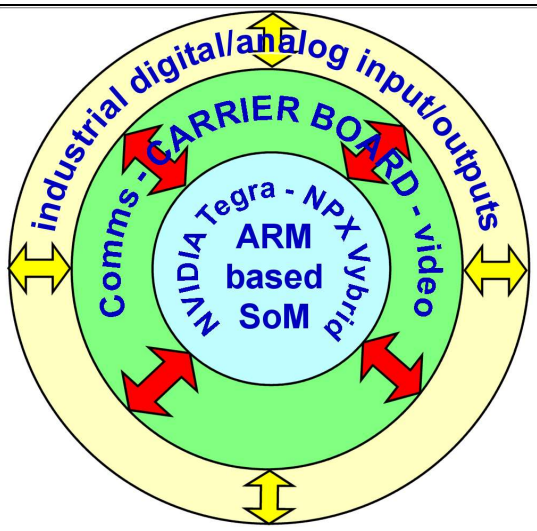
Video	DVI-I
LCD Interface	RGB / LVDS
Resistive Touch	4/5 wire
Audio	Line-In, line-Out, Mic-In
Memory Card Sockets	Micro SD
USB Host / Device/ OTG	1x / -- / 1x (High Speed)
IrDA	1x
GPIOs	24 GPIOs
Ethernet	10/100 Mbit
Camera Interface	--
Serial RS232	1 x DB9 M with full signalled RS232 1 x DB9 M with 2 RS232 ports w/ Tx, Rx and GND signals
RTC on Board	1x (supported batteries: BR1216, CR1216, BR1220, CL1220, CR1220, BR1225)
Power Supply	6 – 27 V DC, reverse polarity and short circuit protected

"TESDA" *OPTIONAL PLUG & PLAY INDUSTRIAL INPUT/OUTPUT BOARD*

Digital Inputs	4, optocoupled(V_{ISO}=5300 V_{RMS}), dry contact / voltage pulldown (default setting) / pullup (hardware selectable)
Digital Input/Outputs	4 digital input/outputs, one by one user configurable
Relay Digital outputs	4 relays, 1 SPDT contact 0'12A@250Vca, 4A@12Vcc
Analog inputs	4x4-20 mA optocoupled(V_{AIS}=1414 V_{RMS}), active/passive mode
Auxiliary power supplies	18 Vcc (for DIs and AIs), 5 Vdc-3'5A, 3'3 Vdc-2'5 A
Supply management	Auxiliary power supplies allow user control
Size	118 (heigth) x 45 (wide) x 137'5 (deep)
Cabinet assembly	DIN rail

"TASAN" OPTIONAL PLUG & PLAY INDUSTRIAL AOs & PWM BOARD[2]

Analog outputs	4 x 4-20 mA optocoupled(V_{AIS}=1414 V_{RMS})
PWM	4 x PWM



IRIS BOX PC hardware architecture

[2] Under development.

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ORDER CODE

IRIS -

_	M_	TS_	E_	C_	B_
CPU	memory	Touch screen	I/O	comms	Box (dimensions in mm.)
VF50 (ARM Cortex™ –A5 400 MHz)	0: 128 MB DDR3	0: without 1: Touch Screen 7", TFT WVGA, touch, 800x480.	0: without 1: TESDA 2: TASAN 3: TESDA + TASAN	0: without 1: RS232 X13 2: RS232 X14 3: RS232 X13+X14	0: DIN rail mounted polycarbonate box, 118 (heigth) x 45 (wide) x 137'5 (deep). MOQ: 1. 1: Panel mounted aluminium box, 160 (height) x 190 (width, with mounting brackets) x 69'3 (depth). MOQ: 25
VF61 (ARM Cortex™ –A5 500 MHz)	0: 256 MB DDR3	0: without 1: Touch Screen 7", TFT WVGA, touch, 800x480.	0: without 1: TESDA 2: TASAN 3: TESDA + TASAN	0: without 1: RS232 X13 2: RS232 X14 3: RS232 X13+X14	0: DIN rail mounted polycarbonate box, 118 (heigth) x 45 (wide) x 137'5 (deep). MOQ: 1 1: Panel mounted aluminium box, 160 (height) x 190 (width, with mounting brackets) x 69'3 (depth). MOQ: 25
T20: ARM Cortex™ –A9 Dual Core 1.0 GHz	0: 256 MB DDR 1: 512 MB DDR	0: without 1: Touch Screen 7", TFT WVGA, touch, 800x480.	0: without 1: TESDA 2: TASAN 3: TESDA + TASAN	0: without 1: RS232 X13 2: RS232 X14 3: RS232 X13+X14	0: DIN rail mounted polycarbonate box, 118 (heigth) x 45 (wide) x 137'5 (deep). MOQ: 1 1: Panel mounted aluminium box, 160 (height) x 190 (width, with mounting brackets) x 69'3 (depth). MOQ: 25
T30: ARM Cortex™ –A9 Quad Core 1.4 GHz	0: 1 GB DDR	0: without 1: Touch Screen 7", TFT WVGA, touch, 800x480.	0: without 1: TESDA 2: TASAN 3: TESDA + TASAN	0: without 1: RS232 X13 2: RS232 X14 3: RS232 X13+X14	0: DIN rail mounted polycarbonate box, 118 (heigth) x 45 (wide) x 137'5 (deep). MOQ: 1 1: Panel mounted aluminium box, 160 (height) x 190 (width, with mounting brackets) x 69'3 (depth). MOQ: 25

Ordering example: ***IRIS-T20-TS1-E1-C1-B0*** controller code stands for ARM DUAL CORE 1.0 GHz 512 MB DDR RAM CPU, 7" touch screen, industrial I/O TESDA board, X13 full signalled RS232 port, plastic box for DIN rail mounting.

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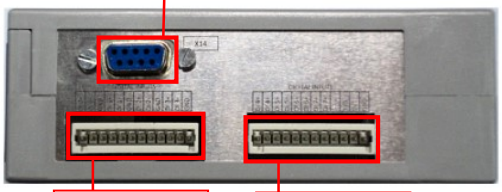
UPPER SIDE

X14: 2 x RS232 DB9 F

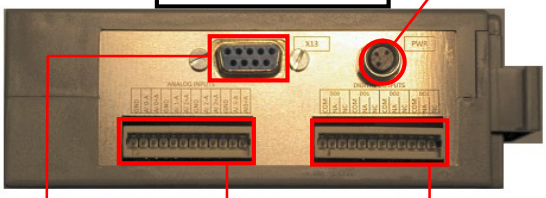


Digital inputs DI0 to DI3

Digital inputs DI4 to DI7

LOWER SIDE

6-27 Vdc

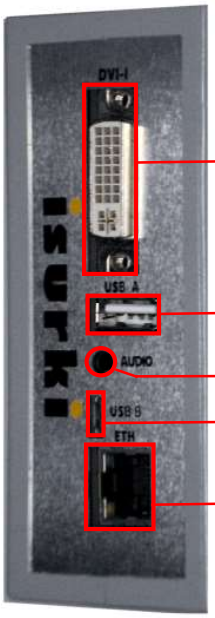


X13: full signalled RS232 DB9 F

4 x 4-20 mA analog inputs passive/active sensors

4 relay output, switched contact

FRONTAL SIDE



DVI-I video output

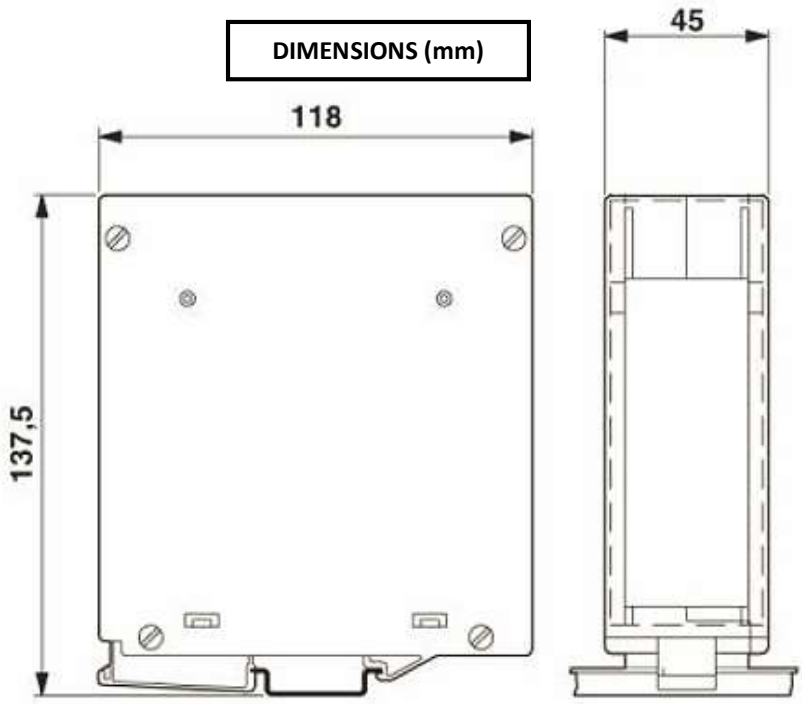
USB 2.0 type A

Audio output

USB OTG

LAN 10/100 RJ45

DIMENSIONS (mm)



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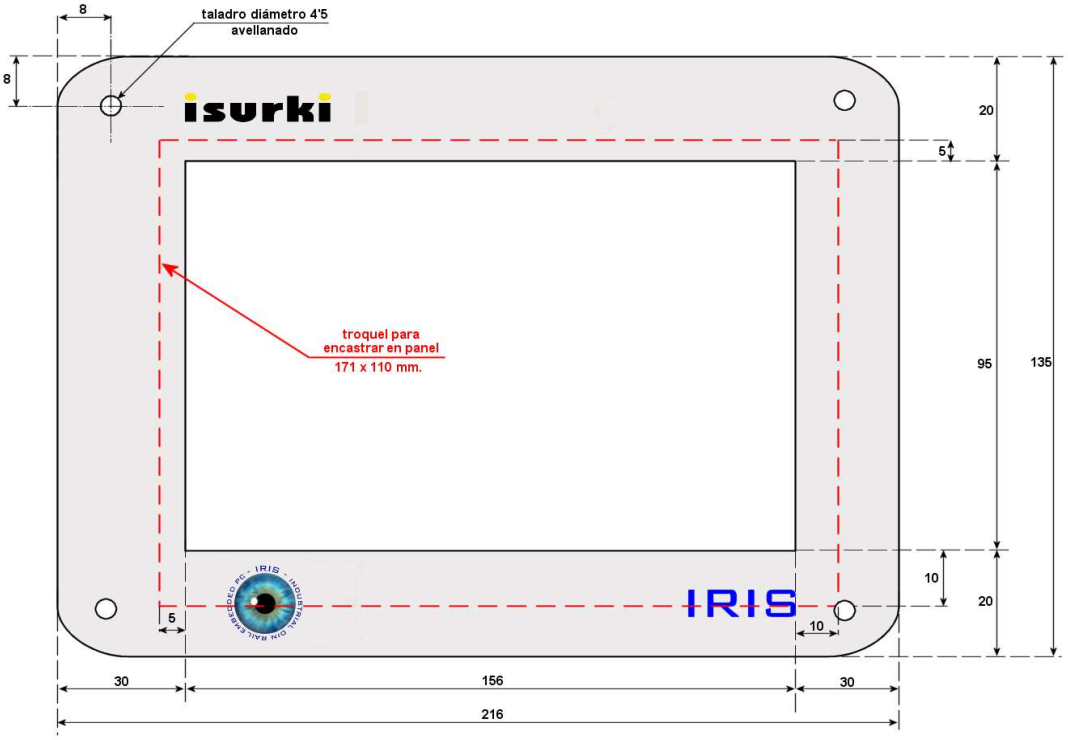
"*IKUS*" TOUCH SCREENS

IKUS is the fully compatible touch screen series for the ***IRIS BOX PC*** industrial controllers family.

The exclusive **UDC** (Unified Display Connectivity) solution allows the integration of all the user required functions (LCD control, touch and backlight) within a single cable and connector, simplyfing the mounting and connection with the controller unit.

Size	7" external dimensions: 166 x 105'44 x 10'95 mm. Effective area: 155'6 x 94'6 mm
Technology	TFT transmissive, anti glare WVGA, 800x480,262K colours
Interface	RGB 18 bits
Connectivity with IRIS	Single and flexible flat cable, 50 cm lenght, 40 poles, AWM 20624 type
Backlight	White leds matrix
Power supply	3'3 Vcc (IRIS supplied), 2592 mW
Temp/H.R. working range	-20 to + 70 ºC / < 90% 96 h maximum
Vibration/Shock	2'45 m/s^2 (0'25 G) / 29'4 m/s^2 (3 G)
Approvals	ROHS



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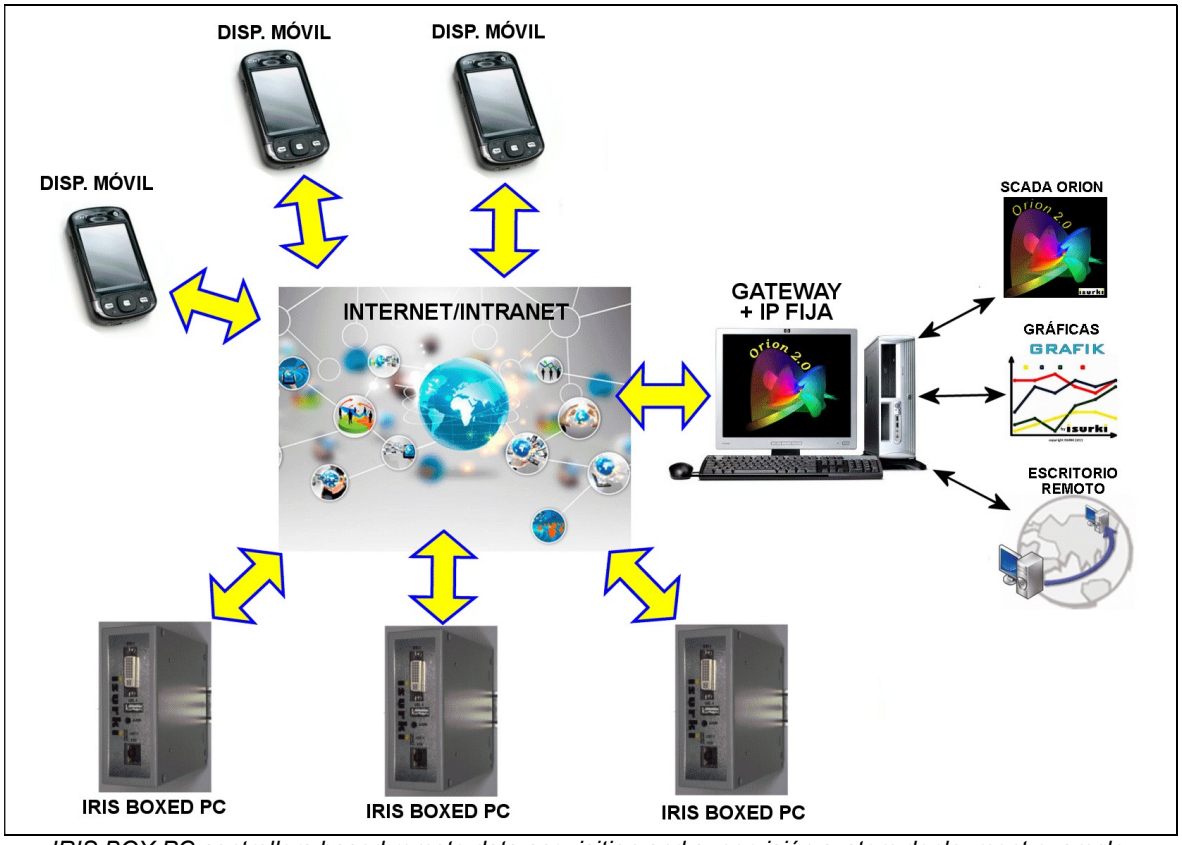
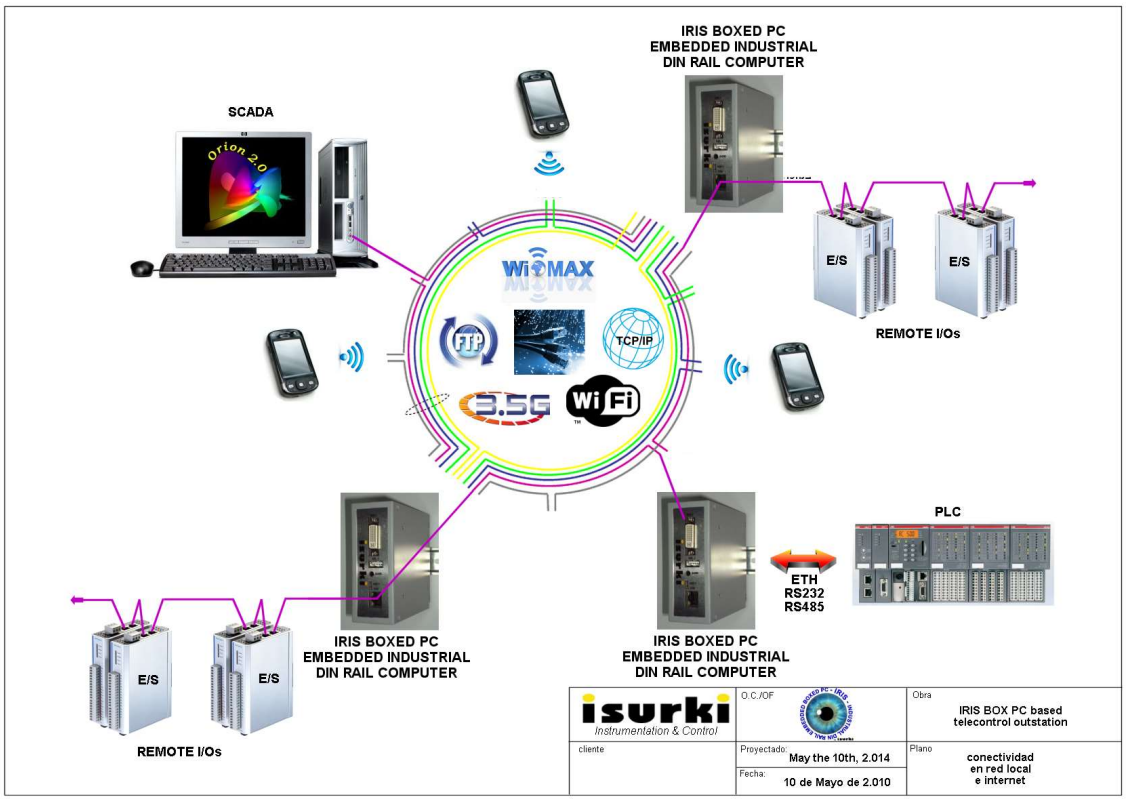


IRIS BOX PC controllers based remote data acquisition and supervisión system deployment example.



Local, remote, wired and wireless communication solutions supported by IRIS BOX PC series.

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IRIS BOX PC SOFTWARE SERVICE TOOLS		
	RTOS (Real Time Operative System).	❖ Windows Compact Embedded 6.0, 7.0. ❖ Linux.
	Remote SCADA	❖ On site monitoring through touch screen based HMI. ❖ Remote monitoring through internet connected mobile devices and PCs.
	Data logging	❖ User configurable time interval data logging. ❖ Logging interval acquisitions average sampling.
	Analog inputs calibration utility	❖ 4 x 4-20 mA analog inputs calibration utility including .txt file calibration report generation.
	Input & outputs testing utilility	❖ Digital inputs, digital relay outputs and analog inputs testing utility.
	Engineering units conversion library	❖ Analog inputs conversion from electrical to user or engineering units through data sampling configurable library.
	SMS alarms library	❖ SMS alarms generation library.
	E-mail alarms library	❖ E-mail alarms generation library..
	Remote desktop	❖ VNC Remote Deskop
	FTP (File Transfer Protocol)	❖ Half duplex file transfer utility between IRIS BOX PC and any FTP client.
	TELNET	❖ Allows remote control of the IRIS BOX PC from any remote terminal
	FOTA (Firmware over the air)	❖ Allows firmware updating.
	Web browser	❖ Internet browser.

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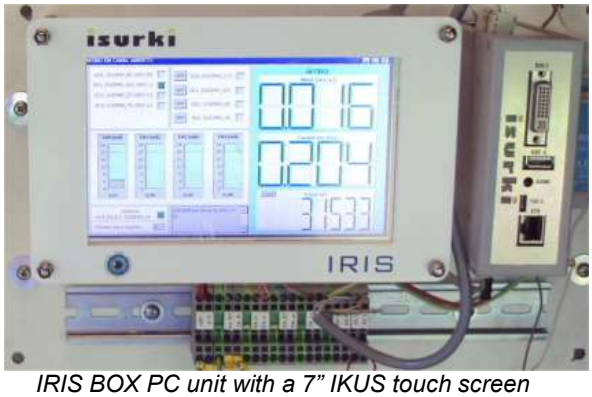
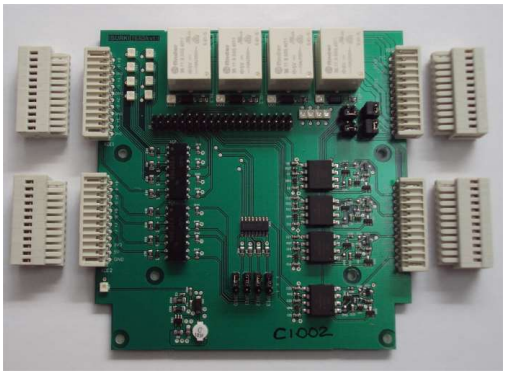
HARDWARE MOUNTING AND REAL CONTROL APPLICATIONS EXAMPLES

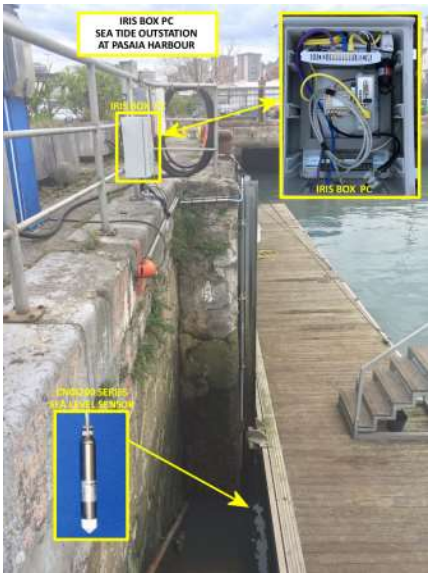


IRIS BOX PC unit with a 7" IKUS touch screen in an open channel flow rate calculation and telemeteringreal application



TESDA industrial analog and digital input/output board, ready to mount inside an IRIS BOX PC unit.

Outdoor (IP66) cabinet tailored telecontrol outstation in a plug & play industrial execution.



Sea tide vectors breakdown measurement, logging and telecontrol outstation.

WIFI connectivity through the USB dongle.

A pair of IRIS BOX PC units working as "in the cloud" telecontrol oustations for remote commands execution.

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IRIS BOX PC AS A TORADEX® ARM SoM COLIBRI FAMILY BASED COMPUTER

Toradex
Swiss. Embedded. Computing.

ISURKI has been awarded by the renowned swiss firm TORADEX as member of his Partner Program: https://www.toradex.com/support/partner-network/hardware/17-iris-box-pc-embedded-kit-by-isurki

ARM Community

And is also member of the ARM Community: https://community.arm.com/b/inaki-s-documents/posts/arm-based-industrial-din-rail-box-pc-with-input-outputs-board

LIST OF AVAILABLE VIDEO TUTORIALS

IRIS BOX PC (BASIC UNIT)		
Description	**Link**	**Contents**
1.- Introductory video	https://youtu.be/28R5CDcZsZI	The basic ideas in which IRIS BOX PC concept is based
2.- Outer view and connectivity	https://youtu.be/7vcTDXAEHps	External view, format and connectivity
3.- Inner view and composition	https://youtu.be/kO_MTS0vqUc	Inner view and different boards lay out
4.- Connectivity with peripherals and field devices	https://youtu.be/Bs_rVip8h50	plug & play connectivity to external peripherals and field devices

INPUT & OUTPUTS *TESDA* BOARD		
Description	**Link**	**Contents**
1.- Introductory video	https://youtu.be/KaBh4xRarmk	Main features and characteristics
2.- Hardware and connectivity	https://youtu.be/rOiRODY-2c4	main hardware features and connectivity options to field devices and peripherals
3.- Test software tool	https://youtu.be/6-CjZogcXxA	test software tool for the input & outputs TESDA board
4.- AIs calibration (Part 1)	https://youtu.be/eQ-MO9GU0mU	Analog inputs calibration procedure: previous preparations
5.- AIs calibration (Part 2A)	https://youtu.be/dL_RkQIQQ_c	Analog inputs calibration procedure: software tool for TEGRA processors
6.- AIs calibration (Part 2B)	https://youtu.be/NYq4iT8rXzE	Analog inputs calibration procedure: software tool for VYBRID processors
7.- AIs library (Tegra µP)	https://youtu.be/ku0ShZcKGJ8	Analog inputs library for TEGRA processors

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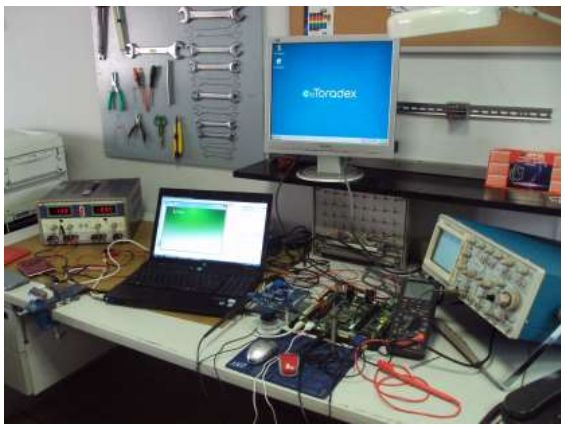
8.- AIs library (Vybrid µP)	https://youtu.be/t4rc7r-TliE	Analog inputs library for VYBRID processors

ON FIELD RUNNING APPLICATIONS		
Description	**Link**	**Contents**
1.- Hydrology telecontrol	https://youtu.be/-sW_kGjiiYI	Monitoring boreholes underground water evolution telecontrol

ISURKI'S BACKGROUND EXPERTISE AND SUPPORT

ISURKI was founded in 1.992 with the target of providing the most advanced electronic, computing & communications technologies to the industry and the resources and facilities management companies, in order to improve the supervision and control of their processes and infrastructures.



Therefore, we define ourselves as an instrumentation, control & software engineering firm focused to the different areas related to the industrial and environmental fields.

The **IRIS BOX PC** is the result of the application of all this expertise into the hardware and software design of the device, allowing us to develop tailored cost effective industrial controllers adapted to specific customer's requirements.

Last, but not least, an excellence based technical assistance and hot line service during the previous and after sales stages, together with the support of our matrix supplier TORADEX, guarantee the best results of the **IRIS BOX PC** unit in your application.

Company headquarters in Irun, state of Gipuzkoa, Spain