

ALTO : Industrial range





Mechanical and Sturdiness

- Sturdy aluminium case. Industrial grade paint
- Compact product : H X L X P = 145 x 128 x 72 mm
- Degree of protection : IP30
- Disconnectable connectors
- Quick anchoring clip on DIN symmetrical rail.

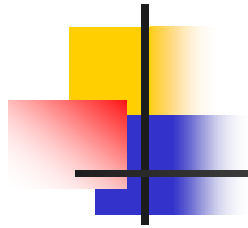
- Electromagnetic immunity EN 50081-2
- Operating temperature : -20°C to +70°C.
Storage temperature : -40°C +85°C
- MTBF : 12 years min according to UTE2000 45°C



I/O Modules

Référence IO	Nb logical inputs	Nb logical outputs	Nb analog inputs	Nb analog outputs
Bx01[^]	24	8 static		
B102	4	4 static	8 HL-RTD-TC	2
Bx03[^]/x04[^]	16-août	8 relays		
Bx06[^] / x07[^]	16-août	8 static		
B108	4	4 static	10 HL	2
B109 / B110	4	4 static	8 HL / 4 HL	
B111	4	4 static	4 HL	2
Bx12[^]	32			
Bx13^{^^}	24 with sensor wire control	4 relays		

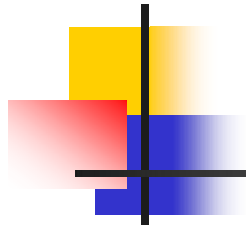
- ⓐ **(*) this module exists with 24Vdc or 12Vdc voltage power.**
- ⓐ **(**) this module exists with 24Vdc, 12Vdc or 230Vca power**
- ⓐ **HL : High level = 0-10V and -20/+20mA (choice by switch)**
- ⓐ **RTD : PT100 ou PT1000 ; TC : Thermo couple**



CPU modules

- ALTO Web IO : Remote Input/ Output module on Ethernet

- ALTO Isagraf : IEC61131-3 Micro PLC on Ethernet



ALTO Web IO

- Smart pre-installed functions
 - Pre-formated ModbusTCP mapping
 - Configuration by HTML pages
 - Very quick start up
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- Suitable for data acquisition in industry, safety sites and harsh environments

ALTO Web IO : Start up without workbench

- After power on, Alto WebIO seeks a IP address from a DHCP or BootP server.
- The operator logs on to the Alto with a browser.

The screenshot shows the 'Bienvenue sur WebIO' (Welcome to WebIO) page. The browser title is 'WebIO 310 - Serveur de paramétrage et de diagnostic Alto - Mozilla Firefox'. The address bar shows 'http://192.168.1.163/login.cgi'. The page features the Leroy Automation logo and a navigation menu on the left. The main content area displays 'Version du programme : V3.1.0' and 'Version des pages HTML : V3.2.0'. Below this, there are two tables for configuration: 'Configuration matérielle' (UCR: B530, AES: B101) and 'Configuration logicielle' (Date: 30/03/2004, Auteur: Leroy, État: Défaut). At the bottom, contact information for Leroy Automatique Industrielle is provided, including the address 'Boulevard du Libre-Echange, F-31650 SAINT-ORENS', phone/fax numbers, website 'www.leroy-automation.com', and email 'support@leroy-autom.com'. The internal clock shows '24/01/2008 11:05:13'.

The screenshot shows the 'Diagnostic entrées TOR/sorties TOR' (TOR input/output diagnosis) page. The browser title is 'WebIO 310 - Serveur de paramétrage et de diagnostic Alto - Mozilla Firefox'. The address bar shows 'http://192.168.1.163/login.cgi'. The page features the Leroy Automation logo and a navigation menu on the left. The main content area displays 'Diagnostic entrées TOR/sorties TOR'. It includes two status matrices: 'Entrées TOR' (8 columns) and 'Sorties TOR' (8 columns). A legend indicates: a green circle for 'Etat bas, état haut' (Low state, high state), a yellow circle with an exclamation mark for 'Forçage : Etat bas, état haut' (Forcing: Low state, high state), and a red circle with an exclamation mark for 'Clignotement : Fréquence A, B' (Flashing: Frequency A, B). A 'Rafraîchir' (Refresh) button is located at the bottom. The internal clock shows '24/01/2008 11:05:13'.



ALTO Web IO Local functions

- Input filtering
- Edge counters
- Duration counters
- Withdrawn output position if ethernet communication failure.
- Output blinking

ALTO Isagraf – IEC 61131-3 Micro PLC



ALTO Isagraf – Programming Language

- The Isagraf workbench uses the 5 IEC 61131-3 languages :
 - ⊙ SFC Sequential Flow Chart (Grafcet)
 - ⊙ ST Structured Text
 - ⊙ LD Ladder Diagram
 - ⊙ IL Instruction List

The image displays three overlapping screenshots of the Isagraf software interface:

- Top-left window:** "ISaGRAF - ALXMULT3:GEST_LOC - Programme SFC". It shows a Sequential Function Chart (SFC) with 10 steps. Step 1 is "step1 initiale". Step 2 contains the action "ACTION (P1): motatol1:=ANA/EPTC". Step 3 contains "ACTION (P1): motatol1:=ANA/EPTC". Step 4 contains "ACTION (P1): GS2.T:temps1". Step 5 contains "ACTION (P1): GS2.T:temps1". Step 6 contains "ACTION (P1): GS2.T:temps1". Step 7 contains "ACTION (P1): GS2.T:temps1". Step 8 contains "ACTION (P1): GS2.T:temps1". Step 9 contains "ACTION (P1): GS2.T:temps1". Step 10 contains "ACTION (P1): GS2.T:temps1".
- Bottom-left window:** "ISaGRAF - ALXMULT3:GEST_LOC - Programme SFC". It shows the same SFC diagram as the top-left window.
- Top-right window:** "ISaGRAF - ALXMULT3 - Programmes". It shows a project tree with folders like "Gest loc" and "sorties.comr".
- Bottom-right window:** "ISaGRAF - ALXMULT3:SORTIES - Programme Quick LD". It shows a Ladder Diagram (LD) with two rungs. The first rung is labeled "(* Saut si fenetre lrs 250 n'est pas celle du chateau d'eau *)". The second rung is labeled "(* marche pompe *)". The diagram includes inputs like "auto_manu", "niveau_chateau_in1", "niveau_bassin_in1", and "Ext2Sort1".
- Right side:** A configuration window for "Câblage des E/S" showing parameters like "AdresseIP = 192.168.1.160" and "MasqueSousReseau = 255.255.255.0".

Technical Specifications

POWER VOLTAGE	24 Vcc +/- 20% ; 12V +/-10% or 85-264Vac
Protection	Against current reversing and overvoltage
DIGITAL INPUTS	IEC 61131 : type 1 resistive, Common = 0V Input current : 5mA Threshold with hysteresis
DIGITAL INPUTS WITH SENSOR WIRE CONTROL	4 Informations : Normal open, Normal close, open Failure, Short Circuit
DIGITAL OUTPUTS (static)	Type P ; 500 mA ; redundant command
DIGITAL OUTPUTS (relays)	Sortie contact 1 travail libre de potentiel. Coil 24V, 3A on resistive load, 2A on inductive load
ANALOG INPUTS	
Choice of type by switch	
TENSION	Choice of range by software : +100mV ou +1V ou +10V
Input impedance	> 1Mohm
Resolutions	0.01mV ; 0.1mV ; 1mV (according to the range)
Précision	0.2%
CURRENT	Choice of range by software : +20mA ou 4-20mA
Resolution / Precision	1uA / 0.2% (25°C)
Input impedance	180 ohm
RTD	Choice of range by software : PT100 ; PT1000
Plage	PT100 : -200°C to +850°C ; PT1000 : -200°C to +400°C
Resolution / Precision	0.2°C / 0.5%
THERMOCOUPLE	Types B C E J K N R S T
Resolution / Precision	1°C / 1%
ANALOG OUTPUTS	Types : 0/4 - 20 mA, 0 - 10 V
Resolution / Precision	12 bits / 0.5% (25°C)



Main references

- A anti-intrusion system for Aramco oil terminal of Ras Tanura (Saudi Arabia)
- 300 Alto webIO modules-



- Surveillance of tramway stations (CAEN city, LYON city)
- 150 Alto webIO modules -



Main references

Control-command of Belgium water supply network - 80 modules -



- Energy monitoring of French TV Broadcasting equipments - 120 Alto Isagraf modules -