



XP31 greenhouse control

Main feature

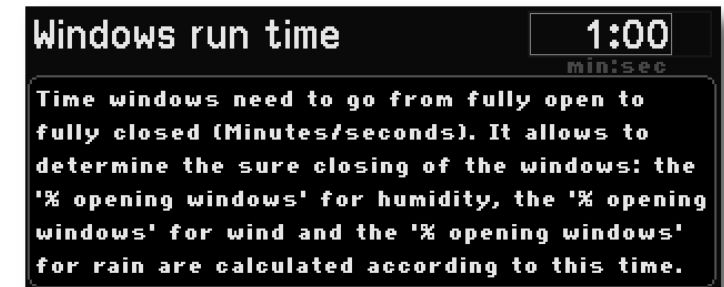
The main feature of the XP31 is the color display screen (3.5") with 320x240 dots resolution with led backlighting. XP31 is made in DIN 96x96 format and the module dimensions are 96x96mm.

The user interface is easy and friendly. The easy touch screen system gives both the typical "easy to use" approach of a touch screen system and the strength and mechanical protection of a polycarbonate IP54 keyboard.

At every screen the function keys display a different graphic making the program very user friendly.

The user can select the display language: all the wordings, acronyms and "help" texts for programming assistance will be displayed in the chosen language.

Each programming step has its own help screen so the program has a "built in" instruction manual.



XP31



greenhouse control



XP31 manages the greenhouse climate by controlling the windows according to the ambient temperature with the option of controlling the shading and insulation based on the external brightness.

The windows are controlled in a floating proportional way according to the ambient temperature and can be conditioned by the ambient humidity, the rain sensor and the wind sensor.

The screen is controlled according to the external brightness and the night time, when the (thermal) screen is fully unrolled and can be conditioned either by the temperature (the sensor is placed at the top between the screen and the ridge in the insulated system case according to the thermal screen function) , or placed at crop level in the case of shading systems that perform the cooling function) or by ambient humidity.

You can also program the morning brightness set as different from the set of the day.

The Summer / Winter conditions affect the operation of the screen based on the temperature probe of the screen and the partial closure of the screens.

The light and rain sensors can be connected to multiple XP31, while the temperature, humidity and wind sensors are specific for each XP31.

Inputs and outputs



Other available connections:

- USB plug
XP31 has a USB plug inside.
- XNET
Network connection card (optional) for XP31 processor (see remote supervision).

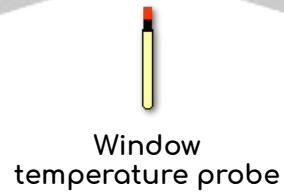
One window control



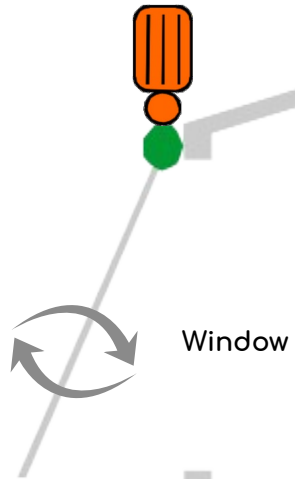
Rain sensor



Wind sensor



Window temperature probe



Window



Humidity probe



FX01

(window gear motor drive)

Two windows control



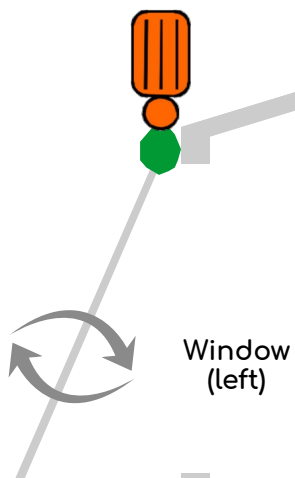
Rain sensor



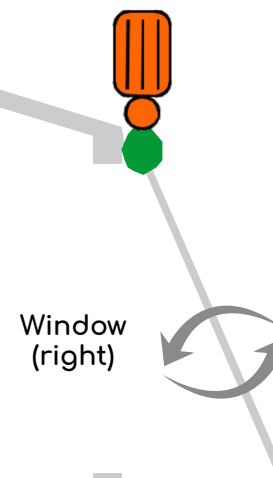
Wind sensor



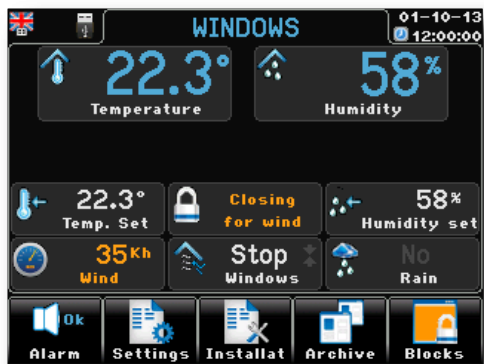
Window temperature probe



Window (left)



Window (right)



Humidity probe



FX02

(left window gear motor drive)
(right window gear motor drive)

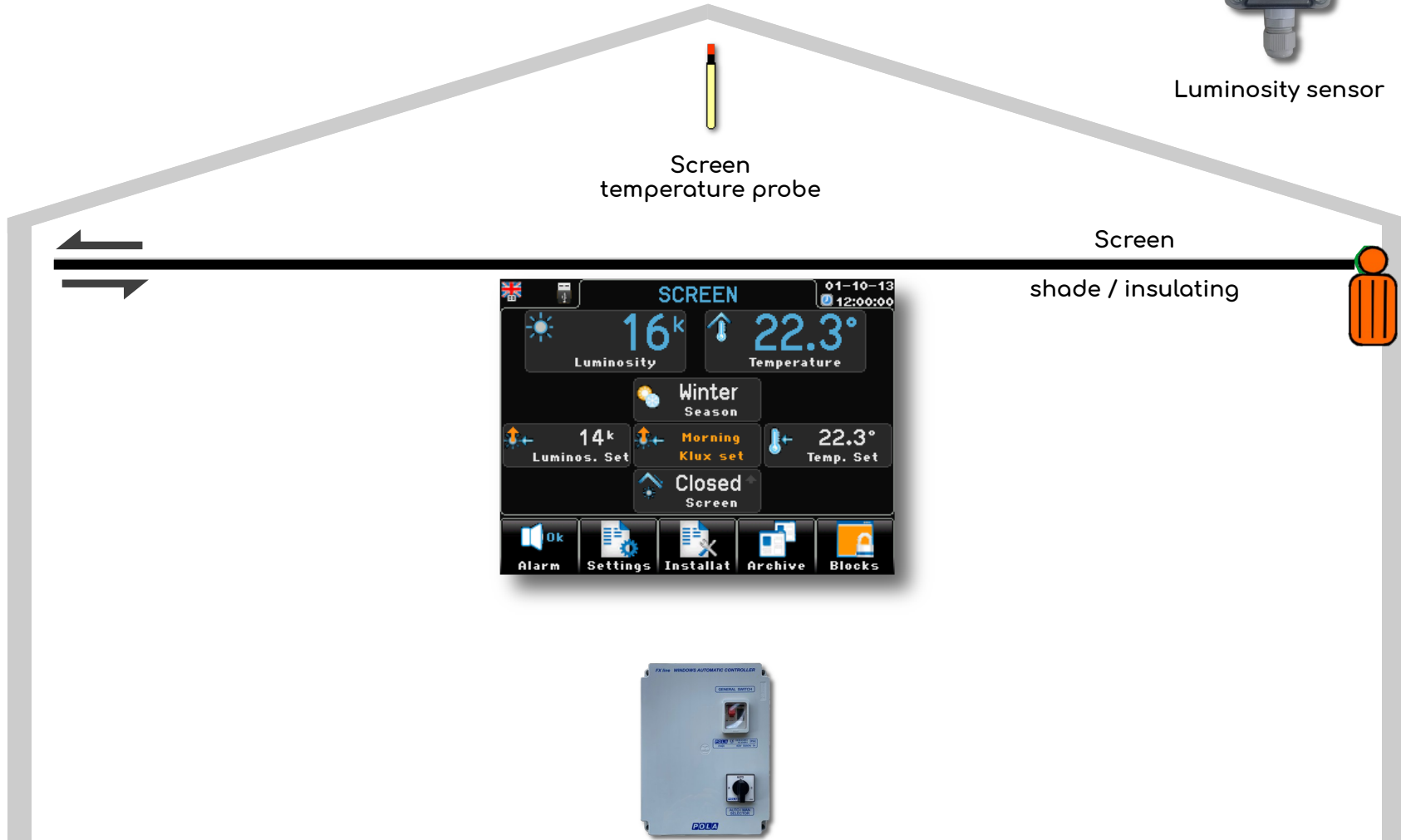
One screen control



Luminosity sensor



Screen temperature probe



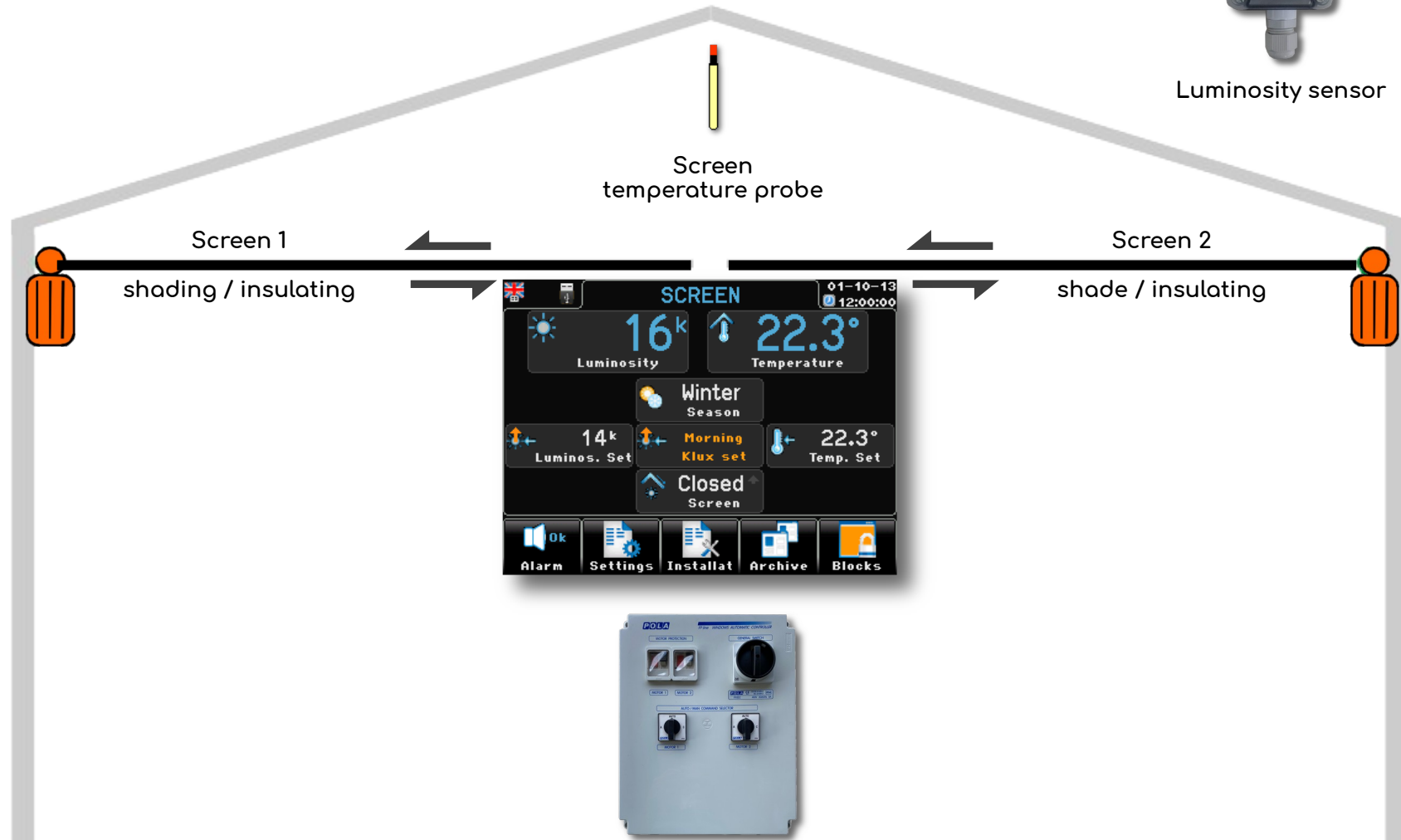
FX01

(window gear motor drive)

Two screens control



Luminosity sensor



FX02

(left screen gear motor drive)
(right screen gear motor drive)

One window + one screen control



Rain sensor



Wind sensor



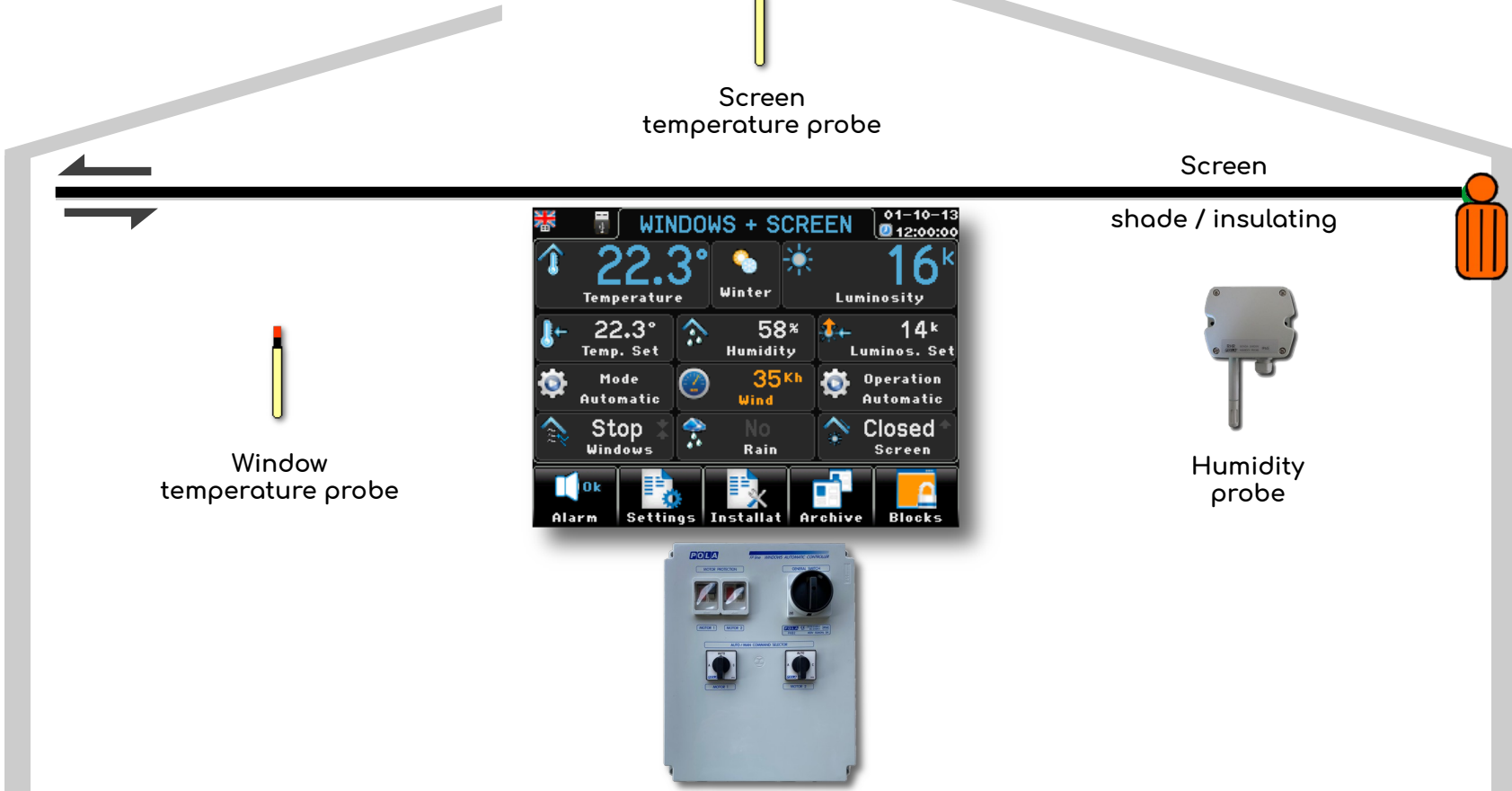
Window



Screen temperature probe



Luminosity sensor



Window temperature probe

Screen shade / insulating

Humidity probe

FX02

(window gear motor drive)
(screen gear motor drive)

Two windows + one screen control



Rain sensor



Screen temperature probe



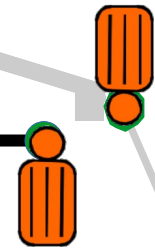
Luminosity sensor



Window (left)



Screen shade / insulating



Window (right)



Humidity probe

Window temperature probe

Control panel showing Windows + Screen status. The panel displays various environmental and control data:

- Temperature: 22.3°
- Temp. Set: 22.3°
- Humidity: 58%
- Humidity Set: 35%
- Luminosity: 16k
- Luminosity Set: 14k
- Mode: Automatic
- Operation: Automatic
- Stop Windows
- No Rain
- Closed Screen
- Buttons: Alarm, Settings, Installat, Archive, Blocks



FX02

(left window gear motor drive)



FX01

(window gear motor drive)

Two windows + two screens control



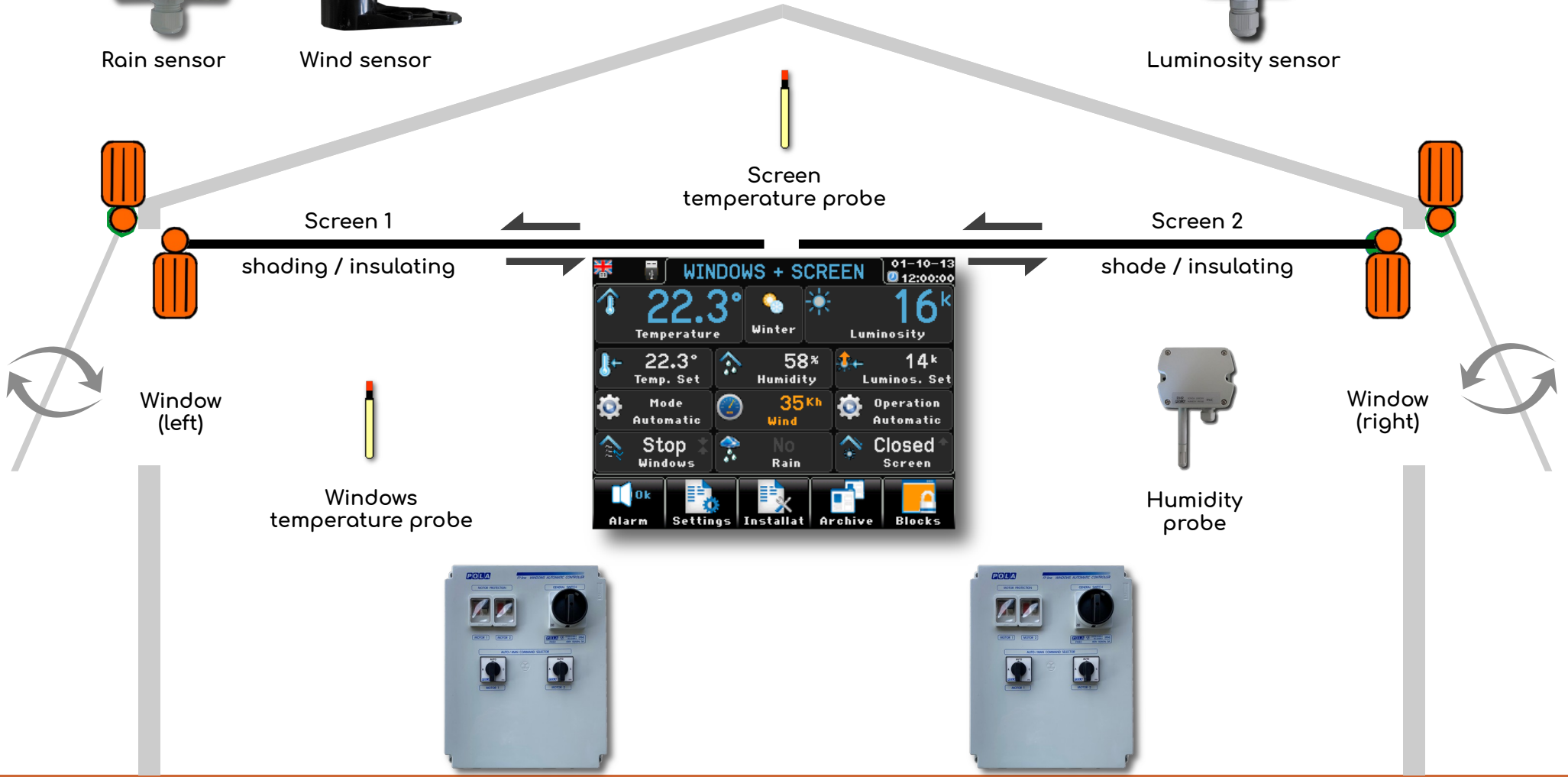
Rain sensor



Wind sensor



Luminosity sensor



Screen temperature probe

Screen 1 shading / insulating

Screen 2 shade / insulating

Window (left)

Window (right)

Windows temperature probe

Humidity probe



FX02



FX02

(left window gear motor drive)
(right window gear motor drive)

(left screen gear motor drive)
(right screen gear motor drive)

Order composition summary table

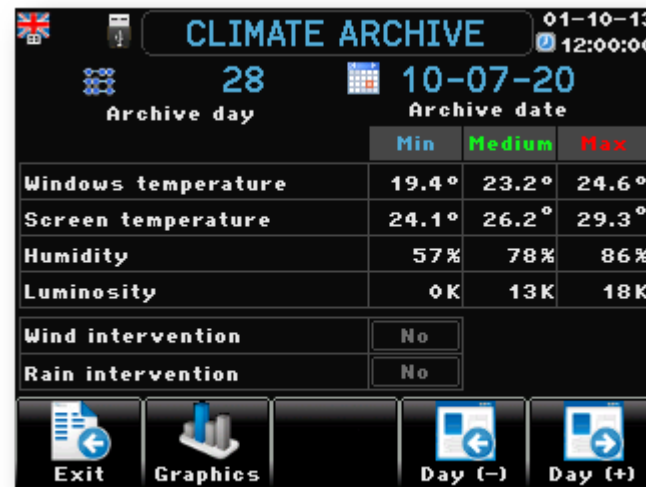


Order composition								
	XP31	FX01	FX02	LXS+HA20s	CSTX	RHR+HA20s	RX+HA20s	WX
	Control	Drive electrical box 1 motor + 1 temp. probe SX	Drive electrical box 2 motors + 2 temp. probes SX	Luminosity probe + power supply *	Thermal trip external contact for FX01-FX02	Humidity pobe + power supply *	Rain pobe + power supply *	Wind speed sensor
	Item codes to be ordered				Options			
Motors to be driven	1 Window	✓	✓		✓	✓	✓	✓
	2 Windows	✓		✓	✓ (N. 2)	✓	✓	✓
	1 Screen	✓	✓		✓			
	2 Screens	✓		✓	✓ (N. 2)			
	1 Window + 1 Screen	✓		✓	✓ (N. 2)	✓	✓	✓
	2 Windows + 1 Screen	✓	✓	✓	✓ (N. 3)	✓	✓	✓
	2 Windows + 2 Screens	✓		✓ (N. 2)	✓	✓ (N. 4)	✓	✓

**If N ° 1 HA20s is already present in the system, it is not mandatory to install others (one is enough for all the sensors that require it).*

The brightness (LXS) and rain (RX) sensors can be connected to multiple XP31, while the temperature (SX), humidity (RHR) and wind (WX) sensors are specific for each XP31.

XP31 records all the parameters of the environment

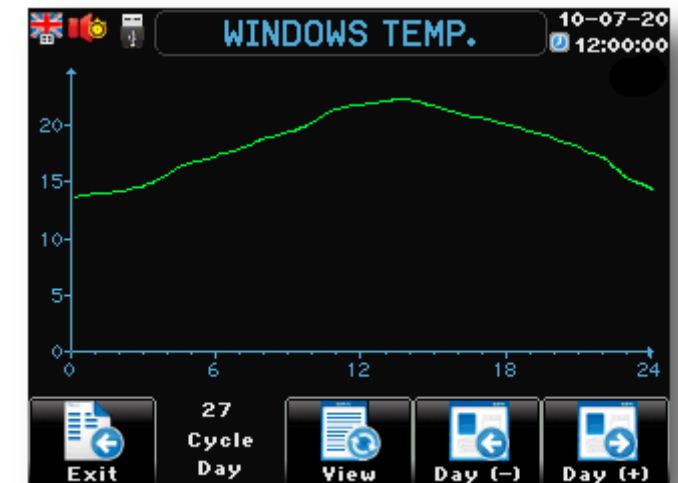


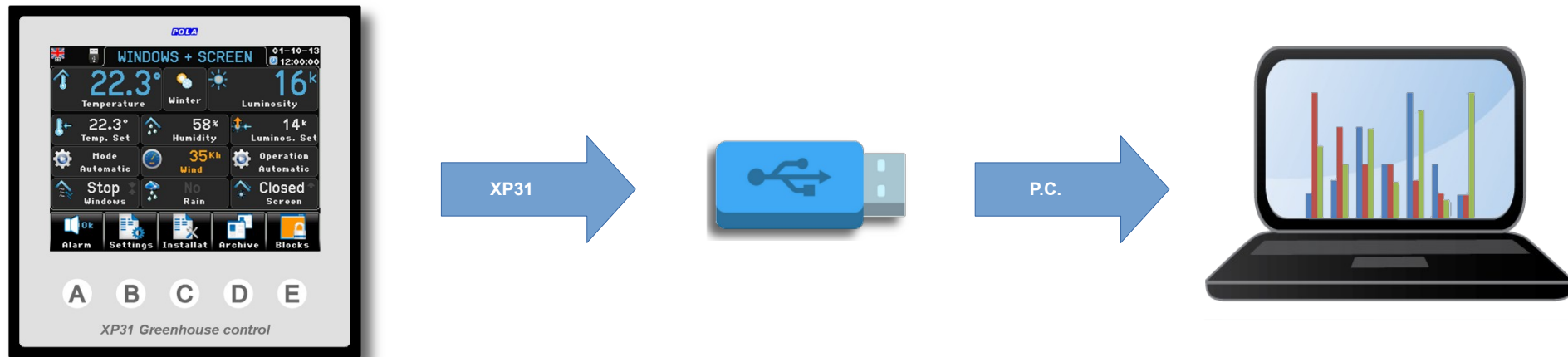
Multiple levels of registrations:

- Daily data, a recording for each day of the cycle
- Data of every single day with sampling every 15 minutes
- Full cycle data

The daily archive records the following parameters:

- Window emperature
- Screen emperature
- Humidity
- Luminosity
- Wind speed
- Rain intervention





The communication with the outside world is performed by USB key.

→ **Export archives**

XP31 save in the USB memory a file containing all the day by day recorded data of the cycle.

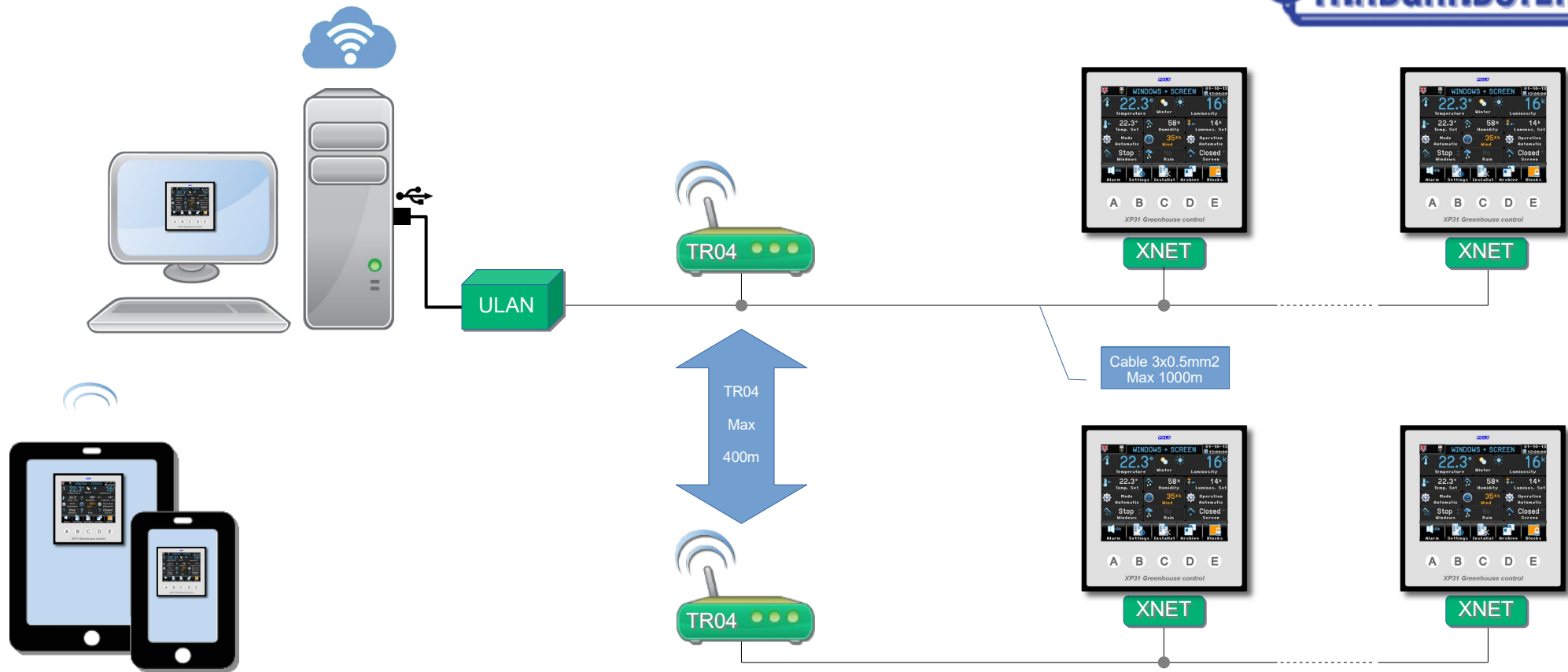
Connecting the USB key to a PC and by using the XP31 Dialogue software you can browse the recorded data in grid or graph formats.

→ **Importing / saving the setting**

You can save a file with all back-up infos on a USB file.

Saved settings can be uploaded on XP31 anytime by a user friendly procedure.

Remote supervision



Remote supervision of XP31 processors grants the full management of system by PC.

The XP31 Net Pro supervision software enables the full remote control of network connected processors. ULAN peripheral is connected to PC through a USB connection. XP31 – ULAN connection is done by a simple 3 wires cable. In all cases where ULAN cannot be cabled to XP31 we can supply TR04 radio-modems with a reach of 400 mt.

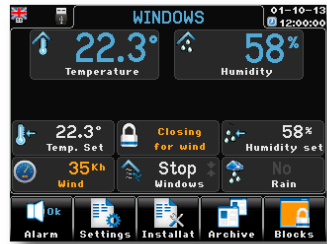
Components for creating a supervision system:

- ULAN: Network server Pc (with USB connection)
- XNET: Network adapter card (one for each XP31)
- TR04: Radio-modem 485 (optional, to be used only when it is not possible to use the cable)

Sample screenshots



view screens



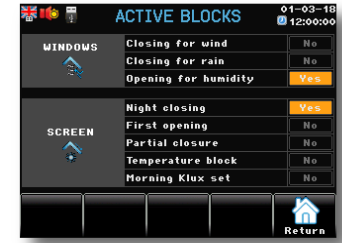
Home page view (only with windows functionality)



Home page view (only with screen functionality)



Home page view (windows + screen functionality)



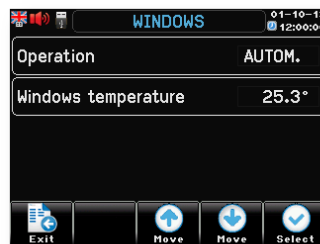
Viewing active blocks



setting screens



Settings selection



Windows parameters Settings



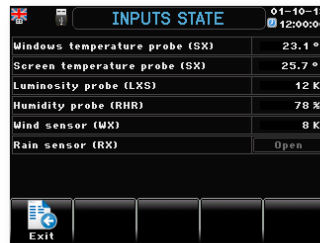
Windows temperature setting



check control screens



Check control



Inputs state



Outputs states

Options available



<i>Model</i>	<i>Description</i>
XP31	Greenhouse control (supplied in IP54 box for wall mounting + gasket + transparent cover)
<i>Options</i>	
FX01	Drive electrical box for one three-phase gear-motor (specify motor power), with 1 SX temperature probe included
FX02	Drive electrical box for two three-phase gear-motors (specify motor power), with 2 SX temperature probe included
CSTX	Thermal trip contact (FX01 option). The intervention of the thermal shutter flap is signaled and managed by the XP31
HA20s *	Power supply (it is unique for the connection of the probes: LXS, RHR, RX).
LXS	Luminosità probe 0-100 Klux (require HA20s*)
RHR	Humidity probe 0...100% (require HA20s*)
RX	Rain sensor to detect rainfall (rain, snow), a heating element is incorporated (require HA20s*)
WX	Wind meter rotating sensor
USBP	USB IP65 external plug (to be mounted externally, for access to the USB without the need to access the back of the XP31)
XNET	Network nodal point
ULAN	Network server Pc (with USB connection)
TR04	Radio-modem 485 (IP55 junction box with power supply 230/12v)

Options available



FX01



FX02



LXS



RX



RHR



WX



HA20s



ULAN



XNET



USBP



TR04

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