ESA PYRONICS INTERNATIONAL
SIAD Group

Electronics

Multizone serial control for Esa Estro control

ESA PLEX-STD (E7105 rev. 02 - 27/01/2016)

GENERAL WARNINGS:

■ All installation, maintenance, ignition and setting must be performed by qualified staff, respecting the norms present at the time and place of the installation.

■ To avoid damage to people and things, it is essential to observe all the points indicated in this handbook. The reported indications do not exonerate the Client/User from observing general or specific laws concerning accidents and environmental safeguarding.

■ The operator must wear proper DPI clothing (shoes, helmets...) and respect the general safety, prevention and precaution norms.

■ To avoid the risks of burns or high voltage electrocution, the operator must avoid all contact with the burner and its control devices during the ignition phase and while it is running at high temperatures.

■ All ordinary and extraordinary maintenance must be performed when the system is stopped.

■ To assure correct and safe use of the combustion plant, it is of extreme importance that the contents of this document be brought to the attention of and be meticulously observed by all personnel in charge of controlling and working the devices.

■ The functioning of a combustion plant can be dangerous and cause injuries to persons or damage to equipment. Every burner must be provided with certified combustion safety and supervision devices.

■ The burner must be installed correctly to prevent any type of accidental/undesired heat transmission from the flame to the operator or the equipment.

■ The performances indicated in this technical document regarding the range of products are a result of experimental tests carried out at ESA-PYRONICS. The tests have been performed using ignition systems, flame detectors and supervisors developed by ESA-PYRONICS. The respect of the above mentioned functioning conditions cannot be guaranteed if equipment, which is not present in the ESA-PYRONICS catalogue, is used.

DISPOSAL:

To dispose of the product, abide by the local legislations regarding it.

GENERAL NOTES:

■ In accordance to the internal policy of constant quality improvement, ESA-PYRONICS reserves the right to modify the technical characteristics of the present document at any time and without warning.

■ It is possible to download technical sheets which have been updated to the latest revision from the **www.esapyronics.com** website.

■ The products manufactured by ESA-PYRONICS have been created in conformity to the **UNI EN 746-2:2010** Norms: Equipment for industrial thermal process - Part 2: Safety requirements for combustion and the movement and treatment of combustible elements. This norm is in harmony with the Machine Directive **2006/42/CE**. It is certified that the products in question respect all the requirements prescribed by the above mentioned Norms and Directives.

■ Certified in conformity with the **UNI EN ISO 9001** Norm by DNV GL.

CERTIFICATIONS:

ESA PLEX-STD is in compliance with European Union directives and standards: **2014/30/UE** (electromagnetic compatibility) **2014/35/UE** (low voltage), **EN 61000-4-2**, **EN 61000-4-4**, **EN 61000-4-5** and **EN 61000-4-11** (electromagnetic compatibility: conducted and radiated emissions, ESD, burst, surges and Power fails immunity).

The products conform to the requests for the Euroasian market (Russia, Belarus and Kazakhstan).

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ESA PLEX-STD

F7105I03

The PLEX-STD ESA device is a controller for setting zones that, by exploiting the ECS communication bus, is able to manage the switching on and off of the burners beyond that indicate their status to their control devices. ESA PLEX-STD is available in different versions depending on the number of zones or system needs, and through a dip swicth bench you can set up the operation in a simple and practical defining the most appropriate one for your application.

APPLICATIONS

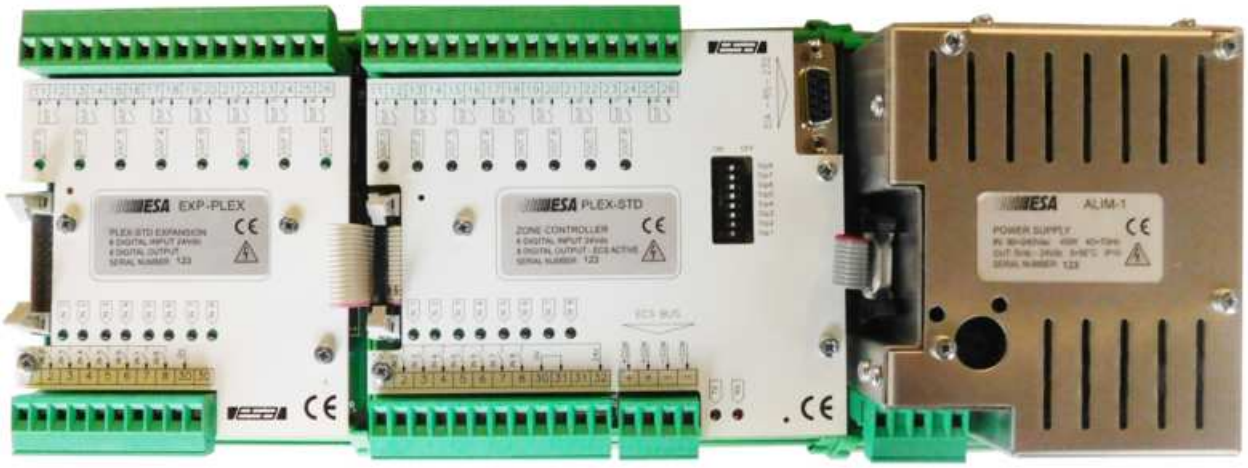
- Converter of digital commands in serial communication, for the management of areas or burners through the ECS bus.
- Communication interface for ESA ESTRO flame control.
- Multi-zone control with digital outputs related to the states of individual zones or burners.

CHARACTERISTICS

GENERAL:

- Supply voltage : 90÷240Vac
- Supply frequency: 40÷70Hz
- Maximum absorption: 40VA
- Operating temperature: 0÷50°C
- Storage temperature: -10÷70°C
- Fastening: on DIN 35mm rail (EN50022)
- Mounting position: any
- Protection degree: IP10
- Working environment: not suitable for explosive or corrosive environments
- ESA PLEX-8S/7T/4D size: 220X125 H80mm
- ESA PLEX-16S/15T/8D size: 315X125 H80mm
- ESA PLEX-24S/23T/12D size: 410X125 H80mm
- ESA PLEX-8S/7T/4D weight: 900g
- ESA PLEX-16S/15T/8D weight: 1100g
- ESA PLEX-24S/23T/12D weight : 1300g
- Digital input voltage: 24Vdc
- Length of digital input line: max 5mt
- Maximum capacity digital outputs: 2A@230V cosφ=1 1A@230V cosφ=0.5
- Fieldbus tension: max 25Vdc
- Data transmisison speed: max 9600 baud
- ECS line length: max 200mT with ECS cable o with busway
- Connectable instruments to active output:max 70 4800 baud max 60 9600 baud

ESA PLEX-STD with EXP expansion



F7105I04

ESA PLEX-STD with double EXP expansion

F7105I05

DESCRIPTION

There are three main versions: ESA PLEX-8S/7T/4D consists of the main card with available eight inputs and eight outputs, ESA PLEX-16S / 15T / 8D composed of the main board and expansion available with sixteen inputs and sixteen outputs, and finally ESA PLEX-24S / 23T / 12D composed of the main board and two expansions available with twenty-four inputs and twenty-four outputs. In each version it is possible to select three types of operation: Type S (single) where there is one single output for each zone corresponding to the burner on or in lockout state.Type T 8TCU24) where there are two cumulative uotputs corresponding to the burner on state and the burner in lockout state. Then there is type D (double) where there are two outputs for each zone corresponding to the burner on state and the burner in lockout state. ESA PLEX STD receives command through the 24Vdc digital inputs transducing them into serial comands towards the flame control devices: having 24 inputs available it is possible to command upto 24 burner zones. Each input is associated with a letter from A to Z that corresponds to the segment that must be configured in the flame controls installed in the zone to be controlled.

With this command logic, in the flame control address, the node ha sno value and in the same zone the instruments can indistinctly have the same or different nodes.

the outputs are volt free contacts and according to the function selected, they can correspond to the burner on or lockout state.

These outputs are cumulative for the area therefore they are activated as soon as ESA PLEX-STD detects in its zone at least one burner on and / or at least one burner in lockout.

If a burner is put in manual lockout (0 flashes) this is not treated as a locked state, allowing the operator to disable the burners manually.

The ECS bus has a good immunity to electromagnetic interference and provides the parallel connection of all devices, allowing the mixed use of busways and cables.

DESCRIZIONE

If the application finds a number of flame controls higher than what is supported the active ECS, a signal repeater ECS (ECS-DRIVER ESA) must be used.
The power section, consisting of universal feeder ALIM-1 ESA (switching), accepts a wide supply voltage range ensuring that the device works in harsh environments. The PLEX-STD ESA device comes on DIN guide connection in order to be placed inside electrical panels and connections are made using quick-release connectors, thus facilitating wiring operations or maintenance.
ESA PLEX-STD presents for each input and each output a pair of LEDs that are suitable to indicate its status, and two LEDs that indicate the direction of the data flow on the ECS line: one lights up when the interface transmits and the other when it receives. The device also enables direct communication between the PC and the flame controls, acting as an interface for the ECS bus via the EIA-RS-232 communications port. This possibility can be useful during installation and system testing, when you want to directly verify communication through a PC.
ESA PLEX-STD is capable of detecting anomalies on the ECS communication line such as a short circuit or an inversion of the connection of one or more flame controls. When there is an anomaly, the device commands all the burners to switch off as the application is out of control and it alternately activates the digital outputs to sinal the problem to the remote control device.

DISPLAY SECTION

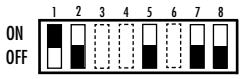
ESA PLEX-STD is accompanied by diagnostic LEDs that are activated to indicate the current status or for any malfunctions.Here are all possible states with the various corresponding signals:

DEVICE	LED	COLOUR	DESCRIPTION
ESA PLEX-STD o ESA EXP-PLEX	OUT-1/24	GREEN	Indication of the digital outputs that indicate the status of the area or plant. Depending on the configuration of the board, the digital outputs take on different meanings. **steady on** - digital output on **off** - digital output not on For a detailed description refer to FUNCTIONING and CONFIGURATION PARAMETERS
ESA PLEX-STD o ESA EXP-PLEX	IN-1/24	GREEN	Indication of digital input state: **steady on**- digital input present **spento** - digital input not present For a detailed description refer to FUNCTIONING and CONFIGURATION PARAMETERS
ESA PLEX-STD	TX	RED	Data transmission indication of the ECS bus: **Flashing fast -** transmitting commands to the flame controls, and each flash corresponds to a communication **Pulsing -** transmission of cumulative commands to the flame controls, or the absence of replies from ECS bus **Off** - the device does is not transmitting any command (not supplied or in configuration) **steady on** - device has damaged trabsmission stage.
ESA PLEX-STD	RX	RED	Receiving data indication of the ECS bus: **Flashing -** receiving states from the flame control devices, each flash corresponds to a communication **off** - the device is not receiving any state **steady on** - the presence of an anomaly on the ECS bus due to short circuits or polarity reversals
ESA ALIM-1	-	GREEN	Presence of indication output 24Vdc: **steady on** - output present **off -** output not present
ESA ALIM-1	-	RED	5 Vdc output presence indication: **steady on** - output present **off -** output not present

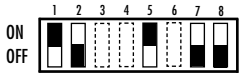
FUNCTIONING

ESA PLEX-8S

The 8S type of functioning allows to have for zone that must b econtrolled, a burner command input and output corresponding to the state of the burners up to a maximum of 8 zones.In particular the comand is a “burner on” command when the input is on and “burner off” when the input is not on. The output instead, can correspond to the “burner on” state (at least one in the zone) or “burner lockout” (at least one in the zone).
The choice between on and the other takes place acting on Dip. 5 of the ESA PLEX-STD Dip-Switch bank
The ignition command activates all the burners that were previously switched off with serial command whilst if one burner s in lockout or stand-by it cas be swicthed on only via the local unblock swicth.
Below we have reported two possible configurations of the Device Dip-swicth bank and the correposndence between inputs, outputs and controlled zones.

ESA PLEX-8S with output with at least one burner on	

FURNACE ZONES	ESA PLEX-8S INPUTS ➔“Commands”	ESA PLEX-8S OUTPUTS ➔“States”
ZONE A	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners on
ZONE B	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners on
ZONE C	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners on
ZONE D	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners on
ZONE E	IN5 ESA PLEX-STD➔on / offi	OUT5 ESA PLEX-STD➔burners on
ZONE F	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners on
ZONE G	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners on
ZONE H	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners on

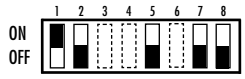
ESA PLEX-8S with output with at least one burner in lockout	

FURNACE ZONES	ESA PLEX-8S INPUTS ➔“Commands”	ESA PLEX-8S OUTPUTS ➔“States”
ZONE A	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners in lockout
ZONE B	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners in lockout
ZONE C	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners in lockout
ZONE D	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners in lockout
ZONE E	IN5 ESA PLEX-STD➔on / offi	OUT5 ESA PLEX-STD➔burners in lockout
ZONE F	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners in lockout
ZONE G	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners in lockout
ZONE H	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

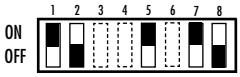
ESA PLEX-16S

The 16S type functioning allows, for each zone to be controlled, to have a burner command input and output corresponding to the states of the actual burners up to a maximum of 16 zones. In particular the “burner on” command when the input is on and “burne off” when the input is not on. The outpuut instead, can correspond to the”burners on” state (at least one in the zone) or “burners in lockout” (at least one in the zone.
The choice between one or the other output correpondece takes place acting on the Dip 5 of the ESA PLEZX-STD device Dip-Switch bank.
The ignition command activates all the burners that were switched off with serial command. If instead a burner is on lockout or standby it can only be switched on by local unblock button. Below we have reported the two possible configurations of the device and th ecorrespondece between inputs, outputs and contolled zones.

PLEX-16S with output with at least one burner on	

FURNACE ZONES	ESA PLEX-16S INPUTS ➔“Commands”	ESA PLEX-16S OUTPUTS ➔“States”
ZONE A	IN1 ESA EXP-PLEX1➔on / off	OUT1 ESA EXP-PLEX1➔burners on
ZONE B	IN2 ESA EXP-PLEX1➔on / offi	OUT2 ESA EXP-PLEX1➔burners on
ZONE C	IN3 ESA EXP-PLEX1➔on / off	OUT3 ESA EXP-PLEX1➔burners on
ZONE D	IN4 ESA EXP-PLEX1➔on / off	OUT4 ESA EXP-PLEX1➔burners on
ZONE E	IN5 ESA EXP-PLEX1➔on / off	OUT5 ESA EXP-PLEX1➔burners on
ZONE F	IN6 ESA EXP-PLEX1➔on / off	OUT6 ESA EXP-PLEX1➔burners on
ZONE G	IN7 ESA EXP-PLEX1➔on / off	OUT7 ESA EXP-PLEX1➔burners on
ZONE H	IN8 ESA EXP-PLEX1➔on / off	OUT8 ESA EXP-PLEX1➔burners on
ZONE I	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners on
ZONE L	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners on
ZONE M	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners on
ZONE N	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners on
ZONE O	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners on
ZONE P	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners on
ZONE Q	IN7 ESA PLEX-STD➔on / offi	OUT7 ESA PLEX-STD➔burners on
ZONE R	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners on

FUNCTIONING

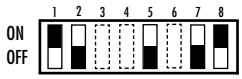
ESA PLEX-16S with output with at least one burner in lockout	

FURNACE ZONES	ESA PLEX-16S INPUTS ➔"Commands"	ESA PLEX-16S OUPUTS ➔"States"
ZONE A	IN1 ESA EXP-PLEX1➔on / off	OUT1 ESA EXP-PLEX1➔burners in lockout
ZONE B	IN2 ESA EXP-PLEX1➔on / off	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE C	IN3 ESA EXP-PLEX1➔on / off	OUT3 ESA EXP-PLEX1➔burners in lockout
ZONE D	IN4 ESA EXP-PLEX1➔on / off	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE E	IN5 ESA EXP-PLEX1➔on / off	OUT5 ESA EXP-PLEX1➔burners in lockout
ZONE F	IN6 ESA EXP-PLEX1➔on / off	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE G	IN7 ESA EXP-PLEX1➔on / off	OUT7 ESA EXP-PLEX1➔burners in lockout
ZONE H	IN8 ESA EXP-PLEX1➔on / offi	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE I	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners in lockout
ZONE L	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners in lockout
ZONE M	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners in lockout
ZONE N	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners in lockout
ZONE O	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners in lockout
ZONE P	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners in lockout
ZONE Q	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners in lockout
ZONE R	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

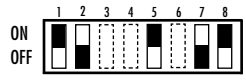
ESA PLEX-24S

The 24S type functioning allows for each zone to be controlled, to have a burner command input and output corresponding to their states up to a maximum of 24 zones. In particular the command is “burners on” when the input is on and “burners off “ when the input is not on. The output instead , can correposnd to the “Burners on” (at one in the zone) state or to “burners in lockou” (at least one in the zone).
The choice between one or the other output correponde-ce takes place acting on the Dip 5 of the ESA PLEZX-STD device Dip-Switch bank.. IThe ignition command activates all the burners that were switched off with serial command. If instead a burner is on lockout or standby it can only be switched on by local unblock button. Below we have reported the two possible configurations of the device and th ecorrespondece between inputs, outputs and contolled zones.

ESA PLEX-24S with output with at least one burner on	

FURNACE ZONES	ESA PLEX-24S INPUTS ➔“Commands”	ESA PLEX-24S OUTPUTS ➔“States”
ZONE A	IN1 ESA EXP-PLEX2➔on / off	OUT1 ESA EXP-PLEX2➔burners on
ZONE B	IN2 ESA EXP-PLEX2➔on / offi	OUT2 ESA EXP-PLEX2➔burners on
ZONE C	IN3 ESA EXP-PLEX2➔on / offi	OUT3 ESA EXP-PLEX2➔burners on
ZONE D	IN4 ESA EXP-PLEX2➔on / off	OUT4 ESA EXP-PLEX2➔burners on
ZONE E	IN5 ESA EXP-PLEX2➔on / off	OUT5 ESA EXP-PLEX2➔burners on
ZONE F	IN6 ESA EXP-PLEX2➔on / off	OUT6 ESA EXP-PLEX2➔burners on
ZONE G	IN7 ESA EXP-PLEX2➔on / off	OUT7 ESA EXP-PLEX2➔burners on
ZONE H	IN8 ESA EXP-PLEX2➔on / off	OUT8 ESA EXP-PLEX2➔burners on
ZONE I	IN1 ESA EXP-PLEX1➔on / off	OUT1 ESA EXP-PLEX1➔burners on
ZONE L	IN2 ESA EXP-PLEX1➔on / off	OUT2 ESA EXP-PLEX1➔burners on
ZONE M	IN3 ESA EXP-PLEX1➔on / off	OUT3 ESA EXP-PLEX1➔burners on
ZONE N	IN4 ESA EXP-PLEX1➔on / off	OUT4 ESA EXP-PLEX1➔burners on
ZONE O	IN5 ESA EXP-PLEX1➔on / off	OUT5 ESA EXP-PLEX1➔burners on
ZONE P	IN6 ESA EXP-PLEX1➔on / off	OUT6 ESA EXP-PLEX1➔burners on
ZONE Q	IN7 ESA EXP-PLEX1➔on / off	OUT7 ESA EXP-PLEX1➔burners on
ZONE R	IN8 ESA EXP-PLEX1➔on / off	OUT8 ESA EXP-PLEX1➔burners on
ZONE S	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners on
ZONE T	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners on
ZONE U	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners on
ZONE V	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners on
ZONE W	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners on
ZONE X	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners on
ZONE Y	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners on
ZONE Z	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners on

FUNCTIONING

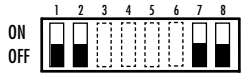
ESA PLEX-24S with output with at least one burner in lockout	

FUNRACE ZONES	PLEX-24S INPUTS ➔"Commands"	PLEX-24S OUTPUTS ➔"States"
ZONE A	IN1 ESA EXP-PLEX2➔on / off	OUT1 ESA EXP-PLEX2➔burners in lockout
ZONE B	IN2 ESA EXP-PLEX2➔on / off	OUT2 ESA EXP-PLEX2➔burners in lockout
ZONE C	IN3 ESA EXP-PLEX2➔on / off	OUT3 ESA EXP-PLEX2➔burners in lockout
ZONE D	IN4 ESA EXP-PLEX2➔on / off	OUT4 ESA EXP-PLEX2➔burners in lockout
ZONE E	IN5 ESA EXP-PLEX2➔on / off	OUT5 ESA EXP-PLEX2➔burners in lockout
ZONE F	IN6 ESA EXP-PLEX2➔on / off	OUT6 ESA EXP-PLEX2➔burners in lockout
ZONE G	IN7 ESA EXP-PLEX2➔on / off	OUT7 ESA EXP-PLEX2➔burners in lockout
ZONE H	IN8 ESA EXP-PLEX2➔on / off	OUT8 ESA EXP-PLEX2➔burners in lockout
ZONE I	IN1 ESA EXP-PLEX1➔on / off	OUT1 ESA EXP-PLEX1➔burners in lockout
ZONE L	IN2 ESA EXP-PLEX1➔on / off	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE M	IN3 ESA EXP-PLEX1➔on / off	OUT3 ESA EXP-PLEX1➔burners in lockout
ZONE N	IN4 ESA EXP-PLEX1➔on / off	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE O	IN5 ESA EXP-PLEX1➔on / off	OUT5 ESA EXP-PLEX1➔burners in lockout
ZONE P	IN6 ESA EXP-PLEX1➔on / off	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE Q	IN7 ESA EXP-PLEX1➔on / off	OUT7 ESA EXP-PLEX1➔burners in lockout
ZONE R	IN8 ESA EXP-PLEX1➔on / offi	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE S	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners in lockout
ZONE T	IN2 ESA PLEX-STD➔on / off	OUT2 ESA PLEX-STD➔burners in lockout
ZONE U	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners in lockout
ZONE V	IN4 ESA PLEX-STD➔on / off	OUT4 ESA PLEX-STD➔burners in lockout
ZONE W	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners in lockout
ZONE X	IN6 ESA PLEX-STD➔on / off	OUT6 ESA PLEX-STD➔burners in lockout
ZONE Y	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners in lockout
ZONE Z	IN8 ESA PLEX-STD➔on / off	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

ESA PLEX-7T

The 7T type functioning allows allows for each zone to be controlled, to have a burner input command up to a maximum of 7 zones and two cumulative outputs for all the zones that correspond to the burner on or burner lockout state. In particular the command is “burner on” command, with input on, and “burner off” with input not on. The output with “burner on” instead, is activated with at least one on and the “burner off” output is activated woth at least one in lockout.
Each output uses the two physical outputs of the card so that both the N.O contact as well as the N.C. contact are availble. The ignition command activates all teh burners that were previously switched off with the serial command. Whilst if a burner is in lockout or stand-by it can only be switched on via the local unblock button. ESA PLEX-7T makes available a cumulative quick shutdown input of which, when active, turns off all the burners regardless of the state of the individual control inputs.
Below is the correspondence between inputs, outputs and controlled areas:

ESA PLEX-7T	

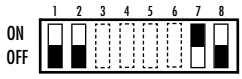
FURNACE ZONES	ESA PLEX-7T INPUTS➔“Commands”
ZONE A	IN1 ESA PLEX-STD➔on / off
ZONE B	IN2 ESA PLEX-STD➔on / off
ZONE C	IN3 ESA PLEX-STD➔on / off
ZONE D	IN4 ESA PLEX-STD➔on / off
ZONE E	IN5 ESA PLEX-STD➔on / off
ZONE F	IN6 ESA PLEX-STD➔on / off
ZONE G	IN7 ESA PLEX-STD➔on / off
switch off all the zones	IN8 ESA PLEX-STD➔off

FURNACE ZONES	ESA PLEX-7T OUTPUTS➔“States”
Burners in lockout	OUT1 ESA PLEX-STD➔N.C.contact
	OUT2 ESA PLEX-STD➔N.O.contact
Burners on	OUT3 ESA PLEX-STD➔N.C. contact
	OUT4 ESA PLEX-STD➔N.O. contact

FUNZIONAMENTO

ESA PLEX-15T

The 15T type functioning allows allows for each zone to be controlled, to have a burner input command up to a maximum of 15 zones and two cumulative outputs for all the zones that correspond to the burner on or burner lockout state. In particular the command is “burner on” command, with input on, and “burner off” with input not on. The output with “burner on” instead, is activated with at least one on and the “burner off” output is activated woth at least one in lockout.
Each output uses the two physical outputs of the card so that both the N.O contact as well as the N.C. contact are availble. The ignition command activates all teh burners that were previously switched off with the serial command. Whilst if a burner is in lockout or stand-by it can only be switched on via the local unblock button. ESA PLEX-15T makes available a cumulative quick shutdown input of which, when active, turns off all the burners regardless of the state of the individual control inputs.
Below is the correspondence between inputs, outputs and controlled areas:

ESA PLEX-15T	

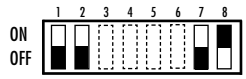
FURNACE ZONES	ESA PLEX-15T INPUTS ➔“Commands”
ZONE A	IN1 ESA EXP-PLEX1➔on / off
ZONE B	IN2 ESA EXP-PLEX1➔on / off
ZONE C	IN3 ESA EXP-PLEX1➔on / off
ZONE D	IN4 ESA EXP-PLEX1➔on / off
ZONE E	IN5 ESA EXP-PLEX1➔on / off
ZONE F	IN6 ESA EXP-PLEX1➔on / off
ZONE G	IN7 ESA EXP-PLEX1➔on / off
ZONE H	IN8 ESA EXP-PLEX1➔on / off
ZONE I	IN1 ESA PLEX-STD➔on / off
ZONE L	IN2 ESA PLEX-STD➔on / off
ZONE M	IN3 ESA PLEX-STD➔on / off
ZONE N	IN4 ESA PLEX-STD➔on / off
ZONE O	IN5 ESA PLEX-STD➔on / off
ZONE P	IN6 ESA PLEX-STD➔on / off
ZONE Q	IN7 ESA PLEX-STD➔on / off
Switch off all the zones	IN8 ESA PLEX-STD➔off

FURNACE ZONES	ESA PLEX-15T OUTPUTS➔“States”
Burners in lockout	OUT1 ESA EXP-PLEX1➔N.C. contact
	OUT2 ESA EXP-PLEX1➔ N.O. contact
Burners on	OUT3 ESA EXP-PLEX1➔N.C. contact
	OUT4 ESA EXP-PLEX1➔N.O. contact

FUNCTIONING

ESA PLEX-23T

The 23T type functioning allows allows for each zone to be controlled, to have a burner input command up to a maximum of 23 zones and two cumulative outputs for all the zones that correspond to the burner on or burner lockout state. In particular the command is “burner on” command, with input on, and “burner off” with input not on. The output with “burner on” instead, is activated with at least one on and the “burner off” output is activated woth at least one in lockout.
Each output uses the two physical outputs of the card so that both the N.O contact as well as the N.C. contact are availble. The ignition command activates all teh burners that were previously switched off with the serial command. Whilst if a burner is in lockout or stand-by it can only be switched on via the local unblock button. ESA PLEX-23T makes available a cumulative quick shutdown input of which, when active, turns off all the burners regardless of the state of the individual control inputs.
Below is the correspondence between inputs, outputs and controlled areas:

ESA PLEX-23T	

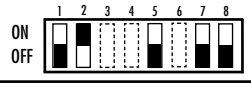
FURNACE ZONES	ESA PLEX-23T INPUTS ➔“Commands”
ZONE A	IN1 EXP-PLEX2➔on / off
ZONE B	IN2 EXP-PLEX2➔on / off
ZONE C	IN3 EXP-PLEX2➔on / off
ZONE D	IN4 EXP-PLEX2➔on / off
ZONE E	IN5 EXP-PLEX2➔on / off
ZONE F	IN6 EXP-PLEX2➔on / off
ZONE G	IN7 EXP-PLEX2➔on / off
ZONE H	IN8 EXP-PLEX2➔on / off
ZONE I	IN1 EXP-PLEX1➔on / off
ZONE L	IN2 EXP-PLEX1➔on / off
ZONE M	IN3 EXP-PLEX1➔on / off
ZONE N	IN4 EXP-PLEX1➔on / off
ZONE O	IN5 EXP-PLEX1➔on / off
ZONE P	IN6 EXP-PLEX1➔on / off
ZONE Q	IN7 EXP-PLEX1➔on / off
ZONE R	IN8 EXP-PLEX1➔on / off
ZONE S	IN1 PLEX-STD➔on / off
ZONE T	IN2 PLEX-STD➔on / off
ZONE U	IN3 PLEX-STD➔on / off
ZONE V	IN4 PLEX-STD➔on / off
ZONE W	IN5 PLEX-STD➔on / off
ZONE X	IN6 PLEX-STD➔on / off
ZONE Y	IN7 PLEX-STD➔on / off
Spegni tutte le zone	IN8 PLEX-STD➔spegni

FURNACE ZONES	ESA PLEX-23T OUPUTS➔“States”
Burners in lockout	OUT1 ESA EXP-PLEX2➔N.C.contact
	OUT2 ESA EXP-PLEX2➔N.O. contact
Burners on	OUT3 ESA EXP-PLEX2➔N.C. contact
	OUT4 ESA EXP-PLEX2➔N.O. contact

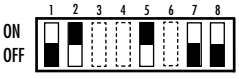
FUNCTIONING

ESA PLEX-4D

The 4D type of operation allows to have for each zone to be controlled two control inputs burners and two outputs corresponding to the state of each, up to a maximum of 4 areas. In particular, the command is “burners on”" when you have the first active input, and "burners off” with these off; while the second input can be configured as a Main input ON / OFF or Main burner unlocking input. In the first case the command is "Main ON" when you have the second active input, and "Main Off" with these off. In the second case, the command is "unlock burner" with the second active input. The choice between one or the other command is done by using the Dip 5 of the Dip-Switch bank of the PLEX-STD device ESA.
For each zone the first output corresponds to the status of "burners on" and is activated with at least one burner of the lit area, while the second output corresponds to the status of "burners in lockout" is activated with at least one of the burners in the blocked area. The active command switches on all the burners previously switched off by serial command, whereas if a burner has shut down or is on standby it can only be switched on by the local release button or via the "unlock burner" command. Of course, this command is executed only by the blocked burner, while the burner turned off by serial command remains the same. Here are the two possible configurations of the bench Dip-Switch device and the correspondence between inputs, outputs and controlled areas.

ESA PLEX-4D with Main ON/Main OFF commands	

FURNACE ZONE	ESA PLEX-4D INPUTS ➔“Comands”	ESA PLEX-4D OUTPUTS ➔“States”
ZONE A	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔Main ON / Main OFF	OUT2 ESA PLEX-STD➔burners in lockout
ZONE B	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔Main ON / Main OFF	OUT4 ESA PLEX-STD➔burners in lockout
ZONE C	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔Main ON / Main OFF	OUT6 ESA PLEX-STD➔burners in lockout
ZONE D	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔Main ON / Main OFF	OUT8 ESA PLEX-STD➔burners in lockout

ESA PLEX-4D with burner unblock command	

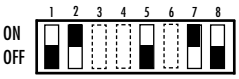
FURNACE ZONE	ESA PLEX-4D INPUTS ➔“Comands”	ESA PLEX-4D OUTPUTS ➔“States”
ZONE A	IN1 ESA PLEX-STD➔on / off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔unlock	OUT2 ESA PLEX-STD➔burners in lockout
ZONE B	IN3 ESA PLEX-STD➔on / off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔unlock	OUT4 ESA PLEX-STD➔burners in lockout
ZONE C	IN5 ESA PLEX-STD➔on / off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔unlock	OUT6 ESA PLEX-STD➔burners in lockout
ZONE D	IN7 ESA PLEX-STD➔on / off	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔unlock	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

ESA PLEX-8D

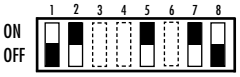
The 8D type of operation allows to have for each zone to be controlled two burner control inputs and two outputs corresponding to the state of each, up to a maximum of 8 zones. In particular, the command is “burners on” when you have the first active input, and "Burners off" with these off; while the second input can be configured as a Main input ON / OFF or Main burner unlocking input. In the first case the command is "Main ON" when you have the second active input, and "Main Off" with these off. In the second case, the command is "burner unlock" with the second active input. The choice between one or the other command is done by using the Dip 5 of the Dip-Switch bank of the PLEX-STD device ESA

For each zone the first output corresponds to the status of "burners on" and is activated with at least one burner of the lit area, while the second output corresponds to the status of "burners in lockout" is activated with at least one of the burners in the block area. The active command switches on all the burners previously switched off by serial command, whereas if a burner has shut down or is on standby it can only be switched on by the local release button or via the "unlock burner" command. Of course, this command is executed only by the blocked burner, while the burner turned off by serial command remains the same. Here are the two possible configurations of the bench Dip-Switch device and the correspondence between inputs, outputs and controlled areas.

ESA PLEX-8D with Main ON/Main OFF commands	

FURNACE ZONES	ESA PLEX-8D INPUTS ➔“Comands”	ESA PLEX-8D OUTPUTS ➔“States”
ZONE A	IN1 ESA EXP-PLEX1➔on/off	OUT1 ESA EXP-PLEX1➔burners on
	IN2 ESA EXP-PLEX1➔Main ON / Main OFF	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE B	IN3 ESA EXP-PLEX1➔on/off	OUT3 ESA EXP-PLEX1➔burners on
	IN4 ESA EXP-PLEX1➔Main ON / Main OFF	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE C	IN5 ESA EXP-PLEX1➔on/off	OUT5 ESA EXP-PLEX1➔burners on
	IN6 ESA EXP-PLEX1➔Main ON / Main OFF	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE D	IN7 ESA EXP-PLEX1➔on/off	OUT7 ESA EXP-PLEX1➔burners on
	IN8 ESA EXP-PLEX1➔Main ON / Main OFF	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE E	IN1 ESA PLEX-STD➔on/off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔Main ON / Main OFF	OUT2 ESA PLEX-STD➔burners in lockout
ZONE F	IN3 ESA PLEX-STD➔on/off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔Main ON / Main OFF	OUT4 ESA PLEX-STD➔burners in lockout
ZONE G	IN5 ESA PLEX-STD➔on/off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔Main ON / Main OFF	OUT6 ESA PLEX-STD➔burners in lockout
ZONE H	IN7 ESA PLEX-STD➔on/offi	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔Main ON / Main OFF	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

ESA PLEX-8D with burner lockout command	

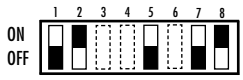
FURNACE ZONES	ESA PLEX-8D INPUTS ➔"Comands"	ESA PLEX-8D OUTPUTS➔"States"
ZONE A	IN1 ESA EXP-PLEX1➔on/off	OUT1 ESA EXP-PLEX1➔burners on
	IN2 ESA EXP-PLEX1➔unlock	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE B	IN3 ESA EXP-PLEX1➔on/off	OUT3 ESA EXP-PLEX1➔burners on
	IN4 ESA EXP-PLEX1➔unlock	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE C	IN5 ESA EXP-PLEX1➔on/off	OUT5 ESA EXP-PLEX1➔burners on
	IN6 ESA EXP-PLEX1➔unlock	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE D	IN7 ESA EXP-PLEX1➔on/off	OUT7 ESA EXP-PLEX1➔burners on
	IN8 ESA EXP-PLEX1➔unlock	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE E	IN1 ESA PLEX-STD➔on/off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔unlock	OUT2 ESA PLEX-STD➔burners in lockout
ZONE F	IN3 ESA PLEX-STD➔on/off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔unlock	OUT4 ESA PLEX-STD➔burners in lockout
ZONE G	IN5 ESA PLEX-STD➔on/off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔unlock	OUT6 ESA PLEX-STD➔burners in lockout
ZONE H	IN7 ESA PLEX-STD➔on/off	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔unlock	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

ESA PLEX-12D

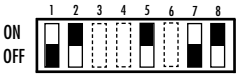
The 12D type operation allows to have for each zone to be controlled two burner control inputs and two outputs corresponding to the state of each, up to a maximum of 12 zones. In particular, the command is “burners on” when you have the first active input, and "burners off" with these off; while the second input can be configured as a Main input ON / OFF or Main burner unlocking input. In the first case the command is "Main ON" when you have the second active input, and "Main Off" with these off. In the second case, the command is "burner unlock” with the second active input. The choice between one or the other command is done by using the Dip 5 of the Dip-Switch bank of the PLEX-STD device ESA

For each zone the first output corresponds to the status of "burners on" and is activated with at least one burner of the lit area, while the second output corresponds to the status of "burner lockout" is activated with at least one of the burners in the block area. TThe active command switches on all the burners previously switched off by serial command, whereas if a burner has shut down or is on standby it can only be switched on by the local release button or via the "unlock burner" command. Of course, this command is executed only by the blocked burner, while the burner turned off by serial command remains the same. Here are the two possible configurations of the bench Dip-Switch device and the correspondence between inputs, outputs and controlled areas.

ESA PLEX-12D with ON/Main OFFcommands	

FURNACE ZONES	ESA PLEX-12D INPUTS ➔“Comands”	ESA PLEX-12D OUTPUTS➔“States”
ZONE A	IN1 ESA EXP-PLEX2➔on/off	OUT1 ESA EXP-PLEX2➔burners on
	IN2 ESA EXP-PLEX2➔Main ON / Main OFF	OUT2 ESA EXP-PLEX2➔burners in lockout
ZONE B	IN3 ESA EXP-PLEX2➔on/off	OUT3 ESA EXP-PLEX2➔burners on
	IN4 ESA EXP-PLEX2➔Main ON / Main OFF	OUT4 ESA EXP-PLEX2➔burners in lockout
ZONE C	IN5 ESA EXP-PLEX2➔on/off	OUT5 ESA EXP-PLEX2➔burners on
	IN6 ESA EXP-PLEX2➔Main ON / Main OFF	OUT6 ESA EXP-PLEX2➔burners in lockout
ZONE D	IN7 ESA EXP-PLEX2➔on/off	OUT7 ESA EXP-PLEX2➔burners on
	IN8 ESA EXP-PLEX2➔Main ON / Main OFF	OUT8 ESA EXP-PLEX2➔burners in lockout
ZONE E	IN1 ESA EXP-PLEX1➔on/off	OUT1 ESA EXP-PLEX1➔burners on
	IN2 ESA EXP-PLEX1➔Main ON / Main OFF	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE F	IN3 ESA EXP-PLEX1➔on/off	OUT3 ESA EXP-PLEX1➔burners on
	IN4 ESA EXP-PLEX1➔Main ON / Main OFF	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE G	IN5 ESA EXP-PLEX1➔on/offi	OUT5 ESA EXP-PLEX1➔burners on
	IN6 ESA EXP-PLEX1➔Main ON / Main OFF	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE H	IN7 ESA EXP-PLEX1➔on/off	OUT7 ESA EXP-PLEX1➔burners on
	IN8 ESA EXP-PLEX1➔Main ON / Main OFF	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE I	IN1 ESA PLEX-STD➔on/off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔Main ON / Main OFF	OUT2 ESA PLEX-STD➔burners in lockout
ZONE L	IN3 ESA PLEX-STD➔on/off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔Main ON / Main OFF	OUT4 ESA PLEX-STD➔burners in lockout
ZONE M	IN5 ESA PLEX-STD➔on/off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔Main ON / Main OFF	OUT6 ESA PLEX-STD➔burners in lockout
ZONE N	IN7 ESA PLEX-STD➔on/off	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔Main ON / Main OFF	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

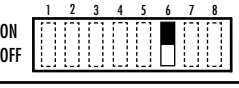
ESA PLEX-12D with burner lockout command	

FURNACE ZONES	ESA PLEX-12D INPUTS ➔"Comands"	ESA PLEX-12D OUTPUTS➔"States"
ZONE A	IN1 ESA EXP-PLEX2➔on/off	OUT1 ESA EXP-PLEX2➔burners on
	IN2 ESA EXP-PLEX2➔unlock	OUT2 ESA EXP-PLEX2➔burners in lockout
ZONE B	IN3 ESA EXP-PLEX2➔on/off	OUT3 ESA EXP-PLEX2➔burners on
	IN4 ESA EXP-PLEX2➔unlock	OUT4 ESA EXP-PLEX2➔burners in lockout
ZONE C	IN5 ESA EXP-PLEX2➔on/off	OUT5 ESA EXP-PLEX2➔burners on
	IN6 ESA EXP-PLEX2➔unlock	OUT6 ESA EXP-PLEX2➔burners in lockout
ZONE D	IN7 ESA EXP-PLEX2➔on/off	OUT7 ESA EXP-PLEX2➔burners on
	IN8 ESA EXP-PLEX2➔unlock	OUT8 ESA EXP-PLEX2➔burners in lockout
ZONE E	IN1 ESA EXP-PLEX1➔on/off	OUT1 ESA EXP-PLEX1➔burners on
	IN2 ESA EXP-PLEX1➔unlock	OUT2 ESA EXP-PLEX1➔burners in lockout
ZONE F	IN3 ESA EXP-PLEX1➔on/off	OUT3 ESA EXP-PLEX1➔burners on
	IN4 ESA EXP-PLEX1➔unlock	OUT4 ESA EXP-PLEX1➔burners in lockout
ZONE G	IN5 ESA EXP-PLEX1➔on/off	OUT5 ESA EXP-PLEX1➔burners on
	IN6 ESA EXP-PLEX1➔unlock	OUT6 ESA EXP-PLEX1➔burners in lockout
ZONE H	IN7 ESA EXP-PLEX1➔on/off	OUT7 ESA EXP-PLEX1➔burners on
	IN8 ESA EXP-PLEX1➔unlock	OUT8 ESA EXP-PLEX1➔burners in lockout
ZONE I	IN1 ESA PLEX-STD➔on/off	OUT1 ESA PLEX-STD➔burners on
	IN2 ESA PLEX-STD➔unlock	OUT2 ESA PLEX-STD➔burners in lockout
ZONE L	IN3 ESA PLEX-STD➔on/off	OUT3 ESA PLEX-STD➔burners on
	IN4 ESA PLEX-STD➔unlock	OUT4 ESA PLEX-STD➔burners in lockout
ZONE M	IN5 ESA PLEX-STD➔on/off	OUT5 ESA PLEX-STD➔burners on
	IN6 ESA PLEX-STD➔unlock	OUT6 ESA PLEX-STD➔burners in lockout
ZONE N	IN7 ESA PLEX-STD➔on/off	OUT7 ESA PLEX-STD➔burners on
	IN8 ESA PLEX-STD➔unlock	OUT8 ESA PLEX-STD➔burners in lockout

FUNCTIONING

BUS ECS INTERFACE

The interface operation for the ECS bus allows you to communicate directly with ESA ESTRO flame control using the EIA-RS-232 communication port. In this case when ESA PLEX-STD receives the serial signal from the PC it transmits it directly to the ECS bus via the active output. This feature is useful when the system is installed, when you want to verify the communication with the flame control via a PC, or if you need to change its configuration. If. In the latter case only one flame control (that is to be configured) at a time must be connected to the active output using the appropriate configuration software. The selection of this operation is done by using the Dip 6, Dip-Switch bank of the PLEX-STD device ESA, that must be run with the power off.

ESA PLEX-STD with ECS interface function	

CONFIGURATION PARAMETERS

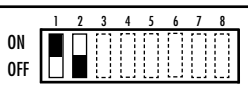
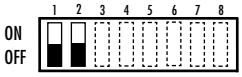
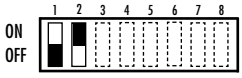
PLEX-STD ESA allows the setting of the operating parameters by means of a bench dip-switch located in the front part Changing parameters (Dip-switch) must be done with the power off.

functioning setting type

The type of operation (S / T / D) is selected by using the Dip Dip 1 and 2. For more detailed information, refer to section "Operation."

The operation as a serial interface for ECS bus is selected by pressing the Dip 6. For more detailed information, refer to section "Operation".

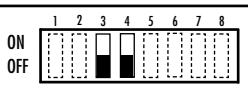
BENCH DIP-SWITCH ESA PLEX-STD

S type functioning	
T type functioning	
D type functioning	

Setting communication speed

The data rate on the ECS bus is selected by using the Dip Dip 3 and 4. Of course, this setting must respect the baud rate selected in the flame control devices connected to the ECS bus.

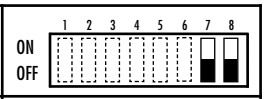
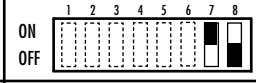
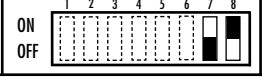
BENCH DIP-SWITCH ESA PLEX-STD

Speed 4800 Baud	
Speed 9600 Baud	

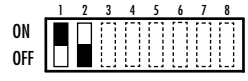
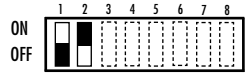
Version selection

The selection among the three versions of the card is done by using the Dip 7 and 8 of the bench dip-switch on the device. In versions in which the ESA EXP-PLEX expansion cards are present you must also select their address defining the position. The selection is made on the DIP switch bank located at the front of the ESA EXP-PLEX expansions

BENCH DIP-SWITCH ESA PLEX-STD

Version ESA PLE X-8S/7T/4D	
Version ESA PLEX-16S/15T/8D	
Version ESA PLEX-24S/23T/12D	

BENCH DIP-SWITCH ESA PLEX-STD

Selection for ESA EXP-PLEX1	
Selection for ESA EXP-PLEX2	

Serial addresses for the flame controls

ESA PLEX-STD sends serial commands to the individual areas by specifying the serial address segment. For this reason the flame controls belonging to the same zone or that must comply with the commands related to an input of the device, must be configured with the serial segment for the input of the PLEX-STD device ESA; while the node has no value and in the same area the instruments can have can have the same node or different nodes. The serial address configuration in the flame control is via the PROG-1 ESA device.

ZONE	FLAME CONTROL ADDRESS
A	A0…A9, AA…AZ
B	B0…B9, BA…BZ
C	C0…C9, CA…CZ
D	D0…D9, DA…DZ
Z	Z0…Z9, ZA…ZZ
ALL	all possbile combinations

WARNINGS

■ In the choice of configuration parameters analyze any risks associated with certain operating modes, choosing the configuration that does not compromise the safety of the application. Before installing the instrument, verify that the configuration parameters are set as defined.

■ The setting of the operating parameters (Dip-switch) is permitted only with a non-powered device. The functionality of the device is not guaranteed if changes are made to the parameters with PLEX-STD powered.

■ ESA PLEX-STD is meant for permament fixed electrical connection. The reversal of the phase / neutral connection may compromise system safety. Do not use different phases between the different voltage inputs and not apply voltages on the output terminals.

■ Check correct connections after installation. Before powering the instrument to ensure that voltage and frequency is correct; ensure that users do not have an absorption greater than the maximum capacity of the output contacts.

■ The device must be located inside electrical panels, they should not be exposed to direct radiation from heat sources nor invested by combustion products such as liquids, solvents or corrosive gases.

■ The use of ESA PLEX-STD device must take place in an environment with temperature variations within the permitted limits.

■ Reversing the polarity of one or more flame control involves the non-operation of the entire ECS bus, and is signaled by the fixed light LED RX. The same situation occurs with a short circuit on the communication line. This malfunction if maintained leads to breakdown of the device.

■ Connecting devices to the ECS bus during operation may cause a brief interruption of communication in course.

■ In case of malfunction PLEX-STD ESA must be sent to the manufacturer for repair. Any modifications or repairs performed by third parties voids automatically the warranty and compromise the application safety.

■ ESA PLEX-STD is a device adapted to control and regulation of combustion plants. It is to be understood therefore as an instrument to ensure the safety, for which there are special specific instruments

INSTALLATION

For correct installation, follow these instructions:

ASSEMBLY

1 - The installation should be performed by qualified personnel, in compliance with the regulations in force at the time and place of installation.

2 - Avoid placing PLEX-STD ESA near intense magnetic or electric fields and in conditions not exposed to direct radiation from heat, let alone from combustion products, liquids, solvents or corrosive gases.

3 - The device must be placed inside electrical panels mounted on DIN rail. The location must be accessible and must have adequate ventilation.

ELECTRICAL CONNECTION

4 - If the supply system is phase-phase type it is necessary to install an isolation transformer with the connection of one secondary winding end to ground.

5 - In carrying out the electrical connection refer to the technical documentation, according to the polarity between phase and neutral. The terminals for the electrical connections are screw type and can accept section conductors from 0.5 to 2.5mm² and the choice of conductors and their location must be suitable for the application.

6 - Adequately tighten the wires into the terminals to prevent malfunctioning or overheating which can lead to dangerous conditions. We recommend numbering and the use of appropriate terminals on conductors.

7 - Always make sure that the protective earth is connected to the relevant terminals and to any metallic frames of the elements connected with suitable conductors. Failure to connect the protective earth to the device, determines a dangerous condition for the operator.

8 - The digital inputs when controlled by dry contacts (relay),can be powered with 24Vdc voltage generated by the PLEX-STD ESA, while if they are controlled by the PLC outputs (Transistor) you must use the 24Vdc PLC power and you must not connect terminals 31 and 32 of the ESA PLEX-STD device. The length of the lines of the digital inputs must not exceed the specified limit.

09 - The laying out of the communication lines must be separated from power lines, motor control (inverters) and network voltage; Moreover MULTIPOLAR or SHIELDED cables must not be used.

10 - For the communication lines use the ECS cable or unipolar cables for electric use, with a section of 0.5mm²; alternatively we recommend the use of busway systemstaking into account a maximum length of the connecting cable between the busway and instrument of 1 m, for both communication and for the power supply.

11 - The length of the communication lines must not exceed the specified limit. If the controller is far from the plant, it is advisable to place the ESA PLEX-STD near the oven or use an ECS signal repeater.

12 - It is recommended to have a fuse on the ECS line active to avoid prolonged short-circuits from damaging the card; If necessary use a rapid blow fuse 1 A.

13 - On each of the ECS bus pieces it is possible to connect the active output of only one ESA PLEX-STD device. If the installation has a greater number of flame control devices than what is allowed, it is necesary to use an ECS signal repeater. If instead the number of zones to monitored exceeds the number of zones controlled by one ESA PLEX-STD device, it is necessary to use more ESA PLEX-STD devices; each one must be connected to its own ECS bus piece.

14 - As soon as the PLEX-STD ESA is supplied, you should verify that the RX LED is not on steady; if this anomaly is present, disconnect the active output and check the ECS bus and the cause of the fault.

GENERAL MAINTENANCE PLAN

Check	Type	Advised time	Operation
Closing of the container	O	periodical	Verify that the instrument is always closed to prevent dirt, dust and moisture can enter and damage the device.
Connecting cable integrity	O	every six months	Check the exterior insulation integrity and the absence of abrasion or conductor overheating.
Tightening of conductors	O/E	yearly	Reduce to every six months for applications with vibrations.
Instrument replacement	E	/	Replacement is necessary if the device is no longer functioning..

NOTES: Key: O = ordinary / E = extraordinary

ORDINARY MAINTENANCE

For proper maintenance of the ESA PLEX-STD board, carefully follow the instructions below. Before carrying out maneuvers with the system on, make sure the safety of the process and the operator is not compromised. iF necessary, check with the system off.

CHECK CASE CLOSING

The closure of the electrical panel case enclosing the device is critical to its proper operation in that it avoids the entry of contaminants that can damage the control board. If there is dirt, first disconnect the power supply to the device and then remove dirt by blowing with compressed air. Do not use any mechanical means for this operation.

INTEGRITY CHECK

The integrity of the electrical cables can be checked visually. In case it is necessary to operate on the conductors for verification, as it is not totally visible, disconnect the power supply from the device before performing any operation

CONDUCTOR TIGHTENING

Checking the tightening of the conductors in appropriate terminals is required to prevent malfunctioning or overheating. During this operation, also check that the insulation of the wire reaches the inside of the terminal or terminal block.

ORDINARY MAINTENANCE

Do not perform repair operations on the device or its components. In case it breaks, replace the damaged part. It is 'therefore strongly it advised to buy in advance spare parts in order to intervene in quickly.

REPLACEMENT OF THE INSTRUMENT

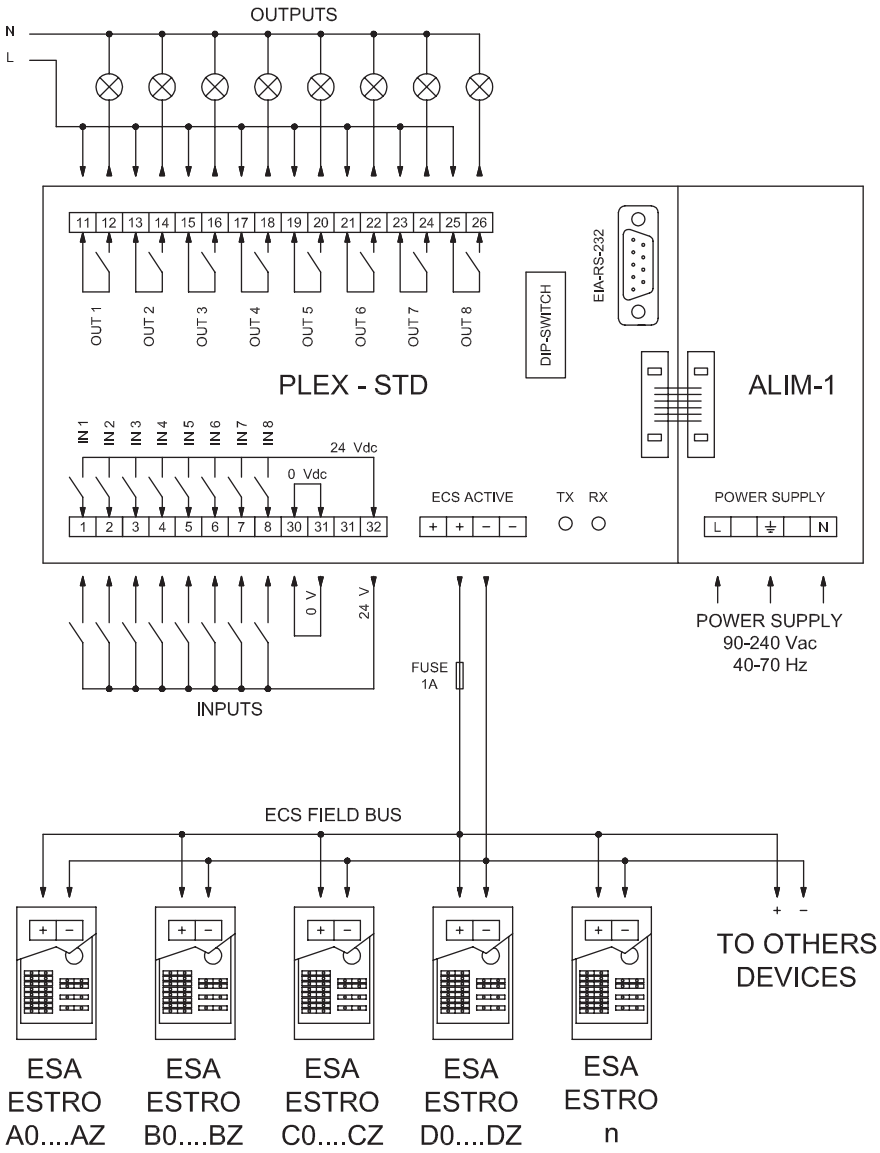
1 - Make sure that the device is indeed the cause of failure or malfunction. Also make sure you have a spare to replace the faulty device checking the data placed on the identification plate and plant documentation.

2 - Switch off the power, release the quick connecting terminal of the board, leaving the wires connected to the female terminal. Remove the card from the mounting DIN rail .

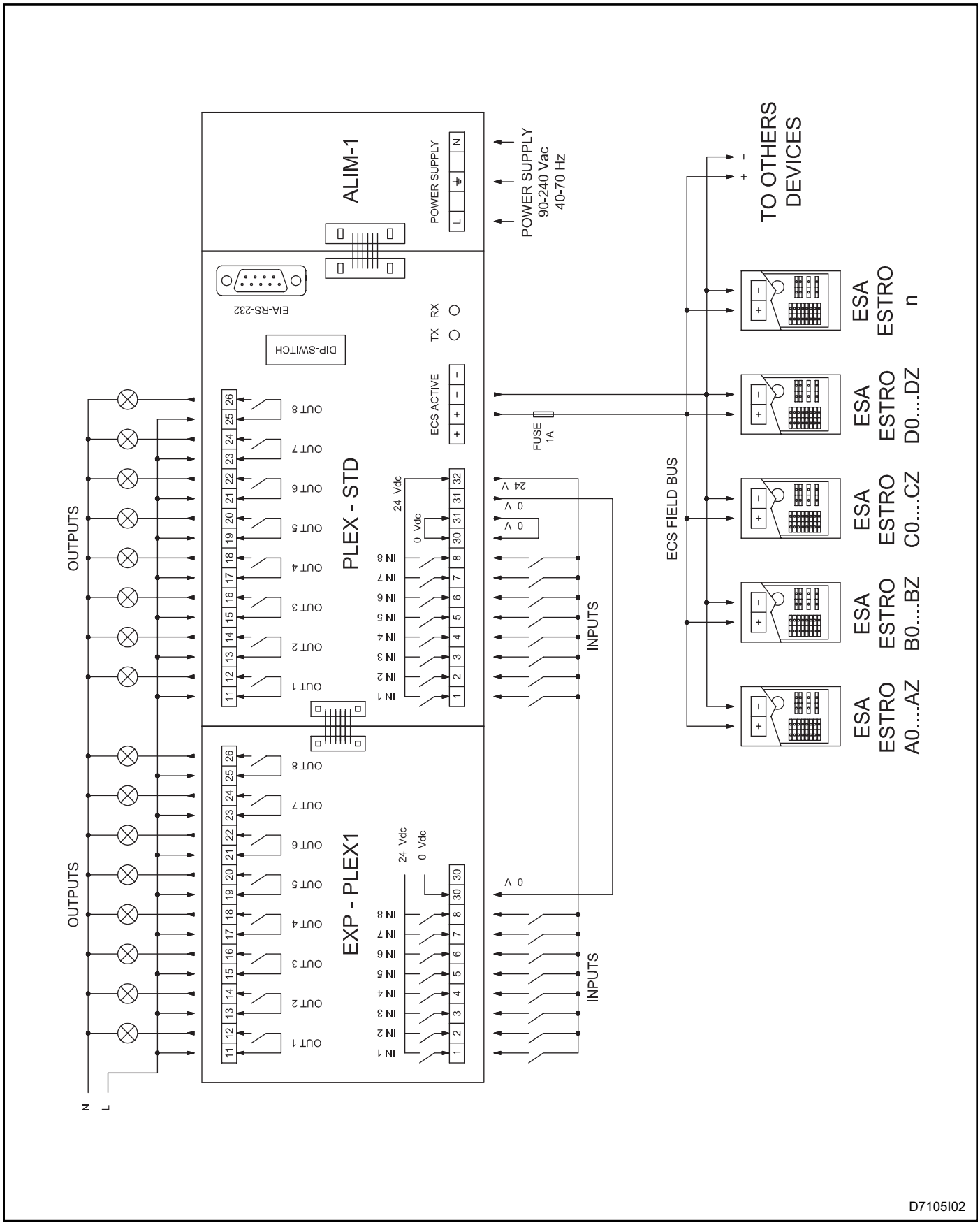
3 - Replace the card and insert the female terminal connected to the cables in the housings on the new device-making sure they are inserted properly and not overturned or shifted.

4 - Turn on power and verify that the new card is working properly.

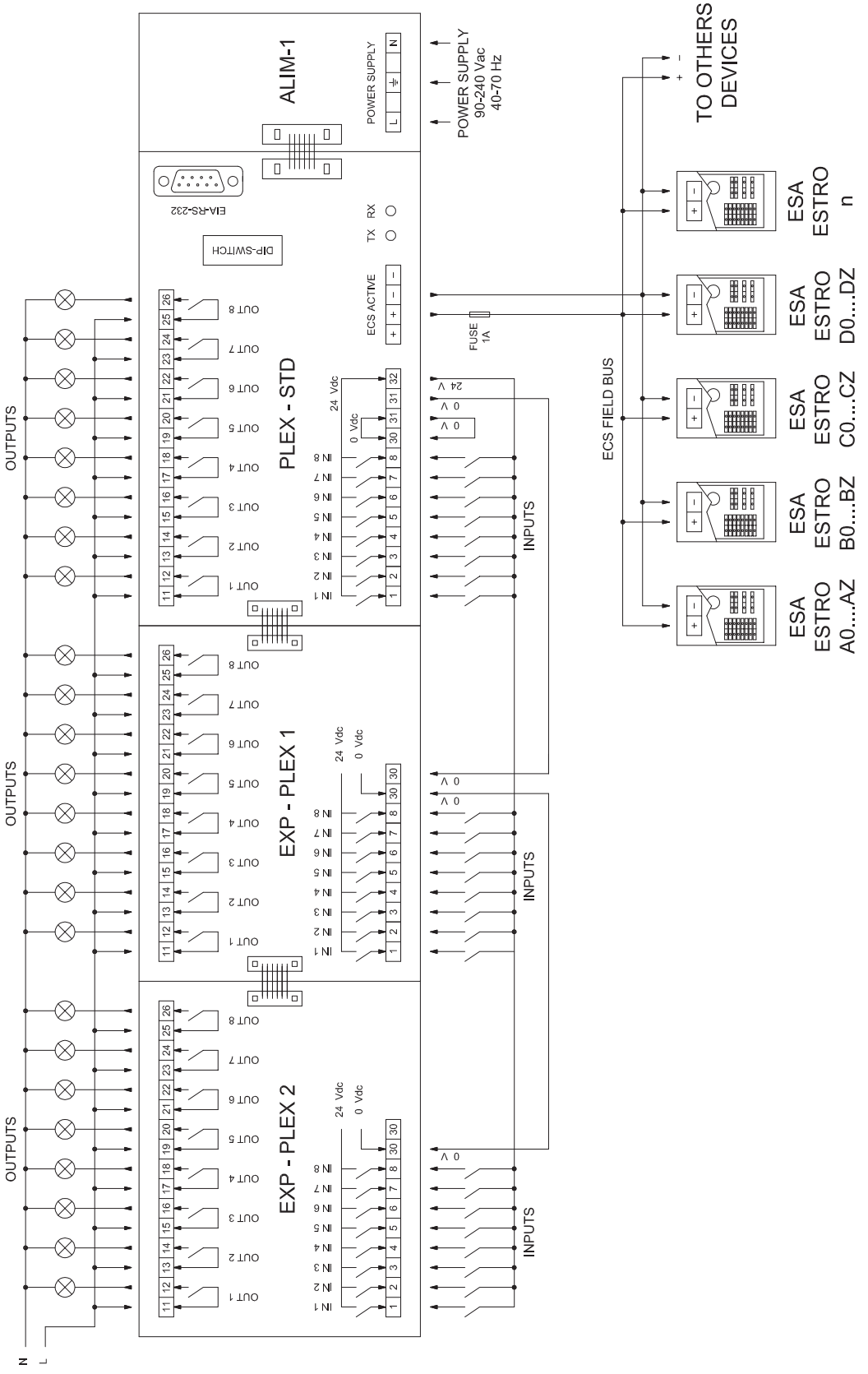
WIRING ESA PLEX-8S7T / 4D



WIRING ESA PLEX-16S/15T/8D

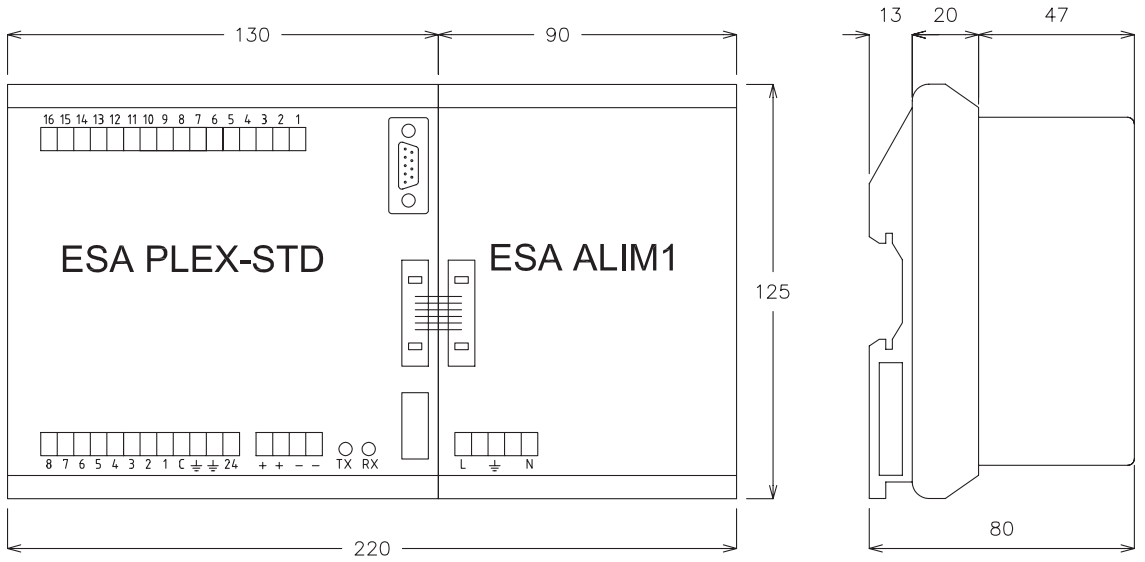


WIRING ESA PLEX-24S/23T/12D



D7105I03

OVERALL DIMENSIONS ESA PLEX-8S/7T/4D



D7105I04

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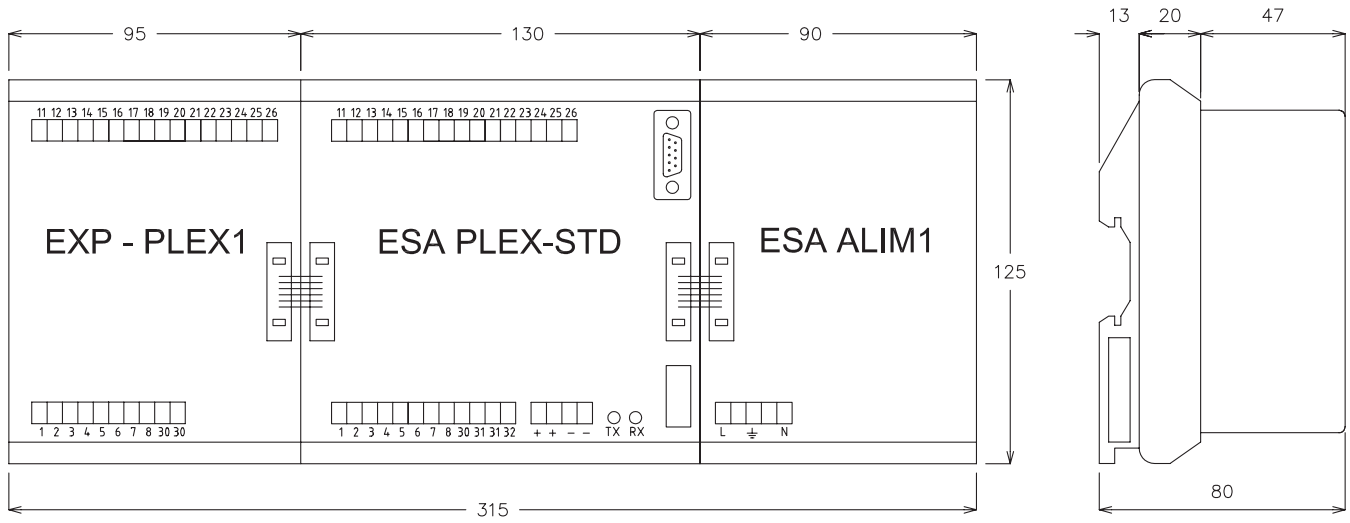
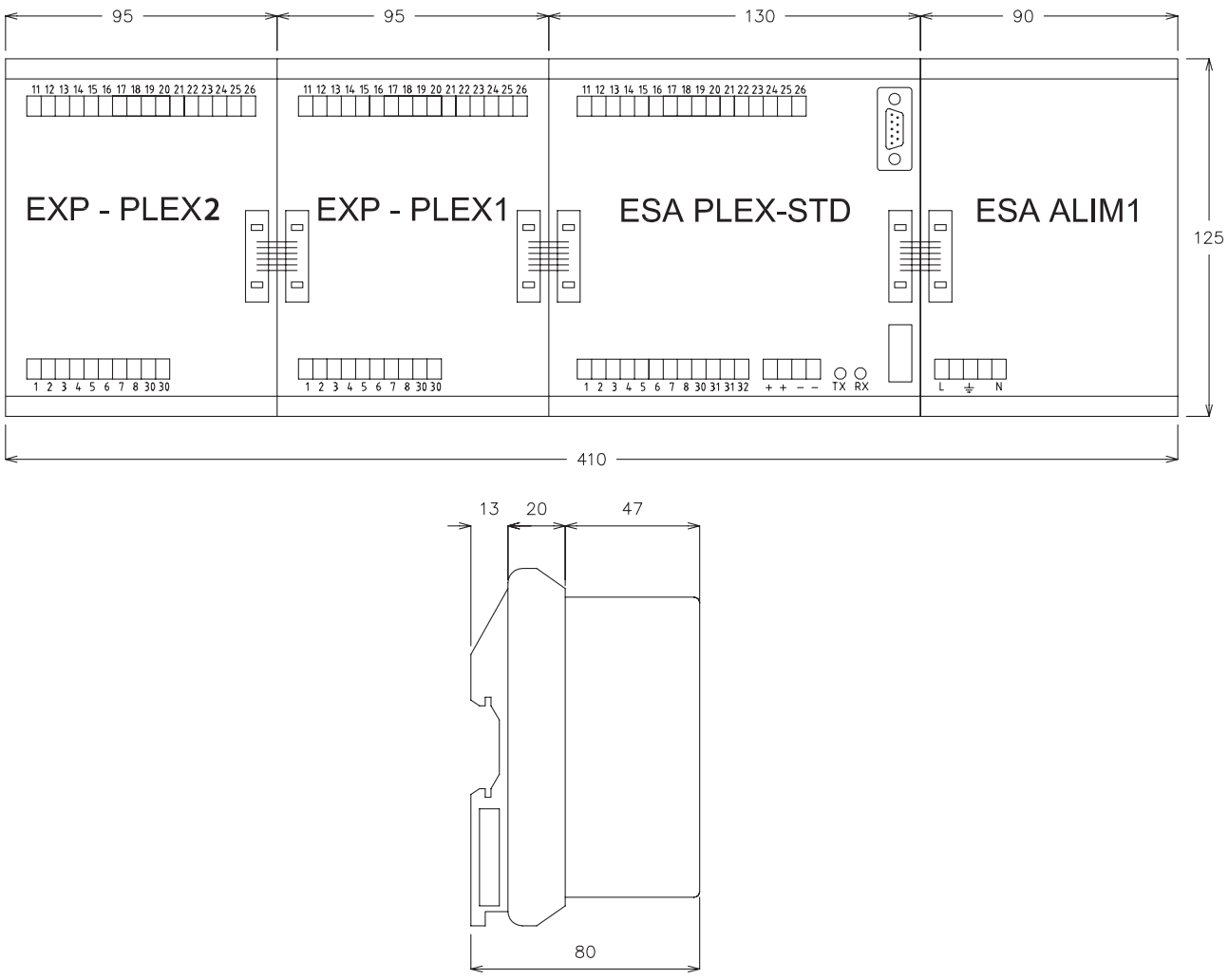


D7105I05

OVERALL DIMENSIONS ESA PLEX-24S/23T/12D



ORDERING CODE

ESA PLEX-STD [01] [02] [03] [04] [05]

DEVICE VERSION	01
8 inpputs & 8 outputs	**8S/7T/4D**
16 inpputs & 16 outputs	**16S/15T/8D**
24 inpputs & 24 outputs	**24S/23T/12D**

TYPE OF FUNCTIONING	02
Single output per zone	**S**
Cumulative outputs for furnace	**T**
Double output per zone	**D**

ECS OUTPUT COMMUNICATION SPEED	03
Baud rate 4800	**4**
Baud rate 9600	**9**

04 OUTPUT CORRESPONDENCE (only for S type functioning)	
Burner on state	**O**
Burner in lockout state	**L**
For T or D functioning	**/**

05 CORRESPONDENCE 2nd INPUT (only for D type functioning	
Main ON / Main OFF Comand	**M**
Burner unlock comand	**U**
For S or T functioning	**/**