

FAACTOTUM

These instructions apply to portable programmer **FAACTOTUM**.

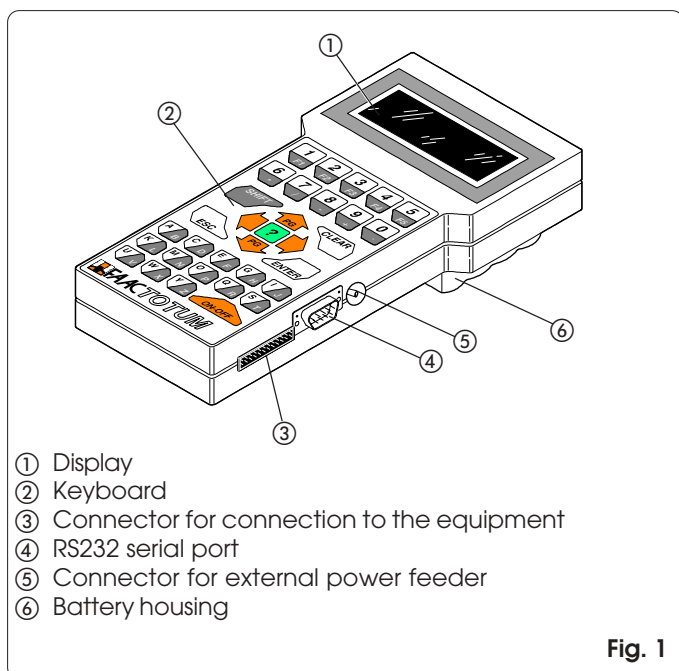
FAACTOTUM is used for programming the 460P and 462DF equipment.

It can customise the equipment's functional parameters and can also modify the functional logics. The customised programming can be saved, not only in the equipment's memory, but also in the programmer's memory (16 maximum).

1. DESCRIPTION

Faactotum consists of an enclosure in ABS housing the control board, the backlit liquid crystal display and the power batteries (optional).

A membrane alphanumeric keyboard is supplied. The connectors on the right side enable connection to the 460P or 462DF equipment, to the RS232 serial port of a personal computer and to an external power feeder.



2. POWER SUPPLY

Faactotum can be powered from various sources:

- 1) When the programmer is connected to the equipment, the latter also supplies power.
- 2) FAACTOTUM has a housing for four alkaline batteries, which will make it run even in the absence of external power sources.
- 3) A connector on the right side is used for connection to an external power feeder (not supplied).

2.1. Connection to the equipment

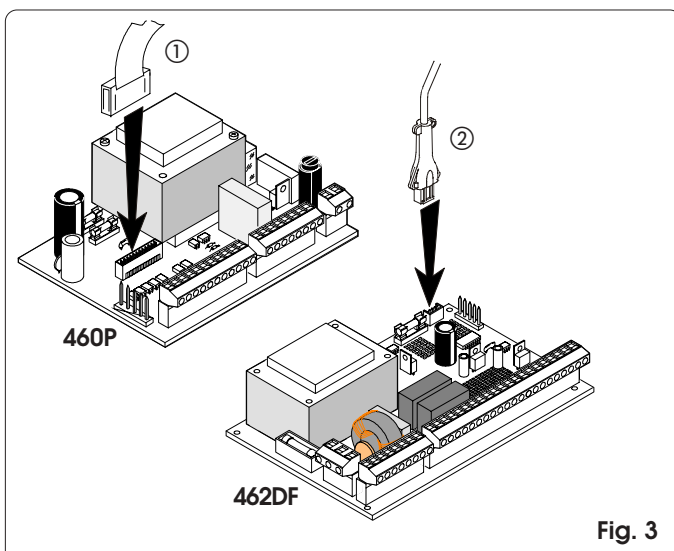
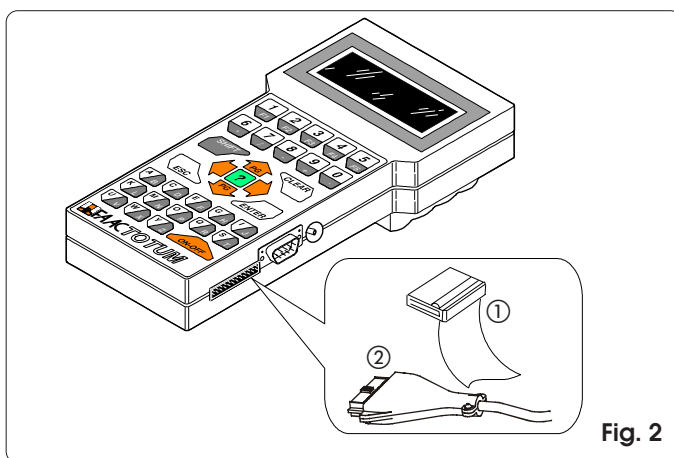
Connect FAACTOTUM to the equipment using the cable (fig. 2):

460P: 20 poles - 20 poles (fig. 2 ref. ① and fig. 3 ref. ①)

462 DF: 20 poles - 8 poles (fig. 2 ref. ② and fig. 3 ref. ②)

The equipment supplies power to FAACTOTUM via the cable. Power feed from the batteries (if installed) is automatically disabled.

Attention: when FAACTOTUM is connected to the equipment, the external power feeder must not be used.



2.2. Battery operation

Back off the closing screw of the battery housing, located at the bottom of FAACTOTUM (fig. 4, ref. ①) and lift up the cover.

Fit the four LR6 "AA" alkaline batteries in their seat, respecting the indicated polarity and close the cover.

When battery power is being used, a function is activated, which commands changeover to energy saving mode after eleven minutes of inactivity. Just press the *ON-OFF* key to re-activate FAACTOTUM - it will locate on the active menu at switch-off.

The operating range is about twenty hours.

If another source is used (equipment or power feeder), this will cause automatic cut out of the battery power supply.

The status of discharged batteries is signalled by a message at switch ON.

For correct use and disposal of the batteries, follow the producer's indications.

2.3. Operation with power feeder (not supplied)

The socket for external power (fig. 5) makes it possible to use power feeders easy to find on the market.

The characteristics are indicated in table 1.

By using the power feeder, you can use FAACTOTUM when it is not connected to the equipment. Power feed from the batteries (if installed) is automatically disabled.

Make sure to check the polarity of the plug before connecting it to FAACTOTUM.

Attention: when FAACTOTUM is connected to the equipment, the external power feeder must not be used.

TAB. 1: Specifications of external power feeder

Output voltage	12Vdc
Current	100mA
Type of plug	for dc Ø 2.1mm
Plug polarity	positive inside (fig. 5)

3. DISPLAY AND KEYBOARD

3.1. Display

FAACTOTUM has a backlit liquid crystal display with four lines and twenty characters per line.

The backlighting de-activates automatically after a minute's inactivity and can be re-activated by pressing any key.

3.2. Keyboard (fig. 6)

FAACTOTUM has an alphanumeric keyboard - its functions are described further below. When keys are pressed, the programmer buzzes to confirm.

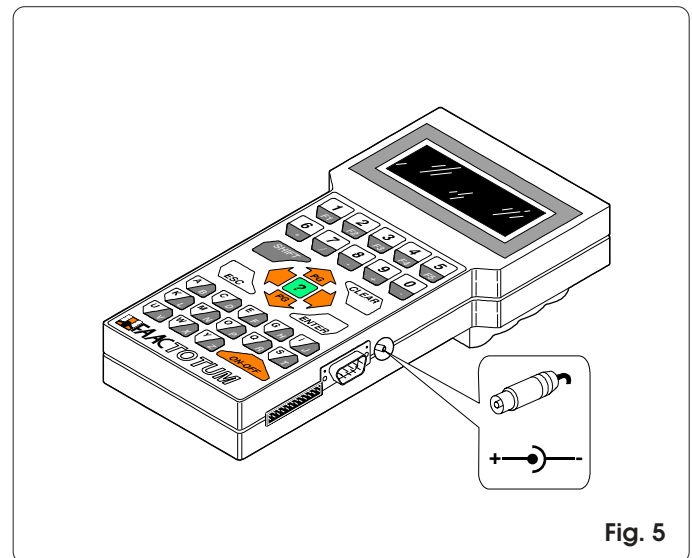


Fig. 5

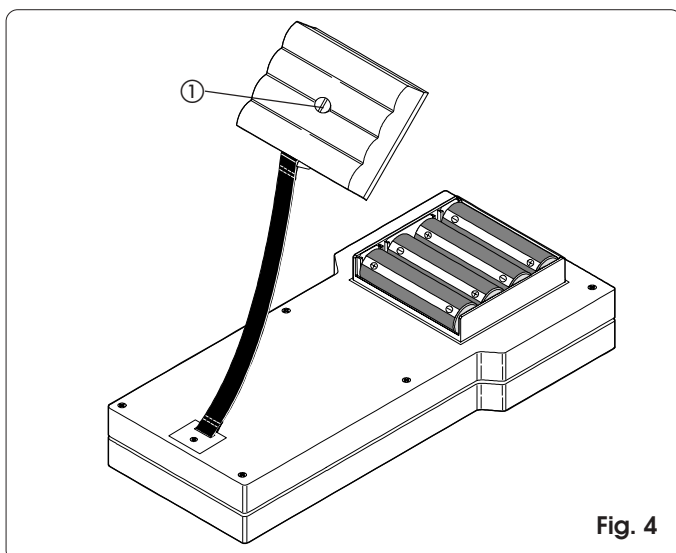


Fig. 4

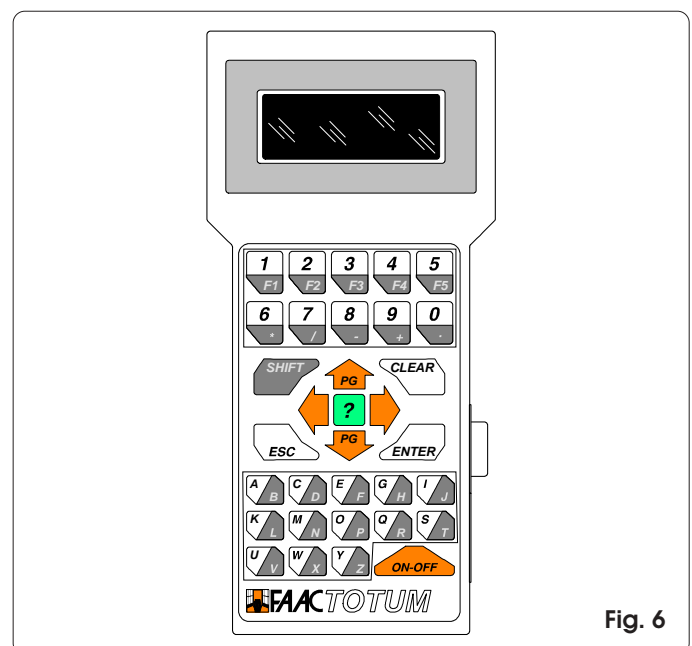


Fig. 6

3.2.1. Keyboard functions

The functions of key-groups or individual keys are provided below.



The ON-OFF Key is used to switch FAACTOTUM On or Off.

Attention: if the programmer is switched off before the programming is saved in the memory or transferred to the board, all modifications will be lost.



The arrow up/down keys enable you to move through the items of the displayed menu. When combined with the SHIFT key, they enable you to change the menu page (where possible):

SHIFT + UP ARROW = previous page

SHIFT + DOWN ARROW = next page



The right/left arrow keys enable you to select the desired option from among those displayed. You must then confirm the option with the ENTER key.



The ENTER key confirms the set data-item or activates the selected function. Any page change must always occur after confirming the set data-item. When specified, pressing the ENTER key will cause changeover to the next menu.



This key enables you to cancel the current data-item when not yet confirmed with ENTER.



The ESC key enables you to go back to the main menu (if a secondary menu is displayed) or to the previous menu (if a main menu is displayed).



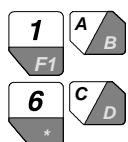
The SHIFT key enables you to use the character or function indicated on the dark part of the 2-colour keys.

Example: if you press the C/D key, you set letter C;

if you press SHIFT + C/D, you set letter D.



If you press the INFO key, you can view a brief description (if available) of the current menu.



The alphanumeric keys are used to input or modify the data in the menus or to name the saving operations. F1 (SHIFT + 1/F1) enables you to compose the space. You may use the numeric keys instead of the arrow keys to select the menu items.

4. OPERATION

Three types of activity can be performed with FAACTOTUM:

- 1) Programming: for defining the equipment's operating parameters.
- 2) Diagnostics: with this series of menus, you can check the functions of the equipment, of the operators, and of the accessories making up the installation. Furthermore, you can also check the total or partial number (resettable) of cycles performed by the automated system.
- 3) Special functions: use this for setting some of the programmer's operating parameters, for downloading the basic configuration onto the board, and for making a connection to the personal computer.

The menu sequences are shown in flow-charts 4.4.1 and 4.4.2. They differ from each other depending on the equipment being used.

Note: before starting to program a new equipment, we advise you to always download the basic configuration.

See below for information on some of the available menus.

4.1. Saving and re-using a programming operation

If you often use the same system configuration, you can save it in the FAACTOTUM memory, after carrying out all the settings, and assign it an identification name which will enable you to recognise and re-load it when re-using it.

Saving:

- 1) when you have finished programming, select YES when prompted with the SAVE IN MEMORY? option
- 2) select one of the 16 locations where to save the programming operation, using the keys and or the numeric keyboard.
- 3) press and type in the name.
- 4) press ENTER to confirm or CLEAR to correct.

Loading:

- 1) when presented with the LOAD PROGRAMMING menu, select FROM MEMORY.
- 2) select one of the 16 locations, using the keys and or the numeric keyboard and press ENTER.

Attention: when you have downloaded the programming operation, we advise you to execute a new time learning operation.

4.2. Saving and re-using a customised logic

To save and re-use a customised function logic, proceed as follows.

Saving:

- 1) when you have finished ADVANCED PROGRAMMING, select YES when prompted with the SAVE IN MEMORY? option
- 2) select one of the 16 locations where to save the logic, using the keys and or the numeric keyboard.
- 3) press and type in the name.
- 4) press ENTER to confirm or CLEAR to correct.

Attention: a programming error when modifying the function logic, could cause unwanted behaviour or malfunctions.

Loading:

- 1) when the LOGIC menu is presented, select CUSTOMISED.
- 2) select one of the 16 locations, using the keys and or the numeric keyboard and press ENTER.

4.3. Access code

In SPECIAL FUNCTIONS, you can activate the request for an access code when the programmer is switched on.

Activation:

- 1) enter the CHANGE ACCESS CODE menu.
- 2) type in the 5 figure code.
- 3) press ENTER.

De-activation:

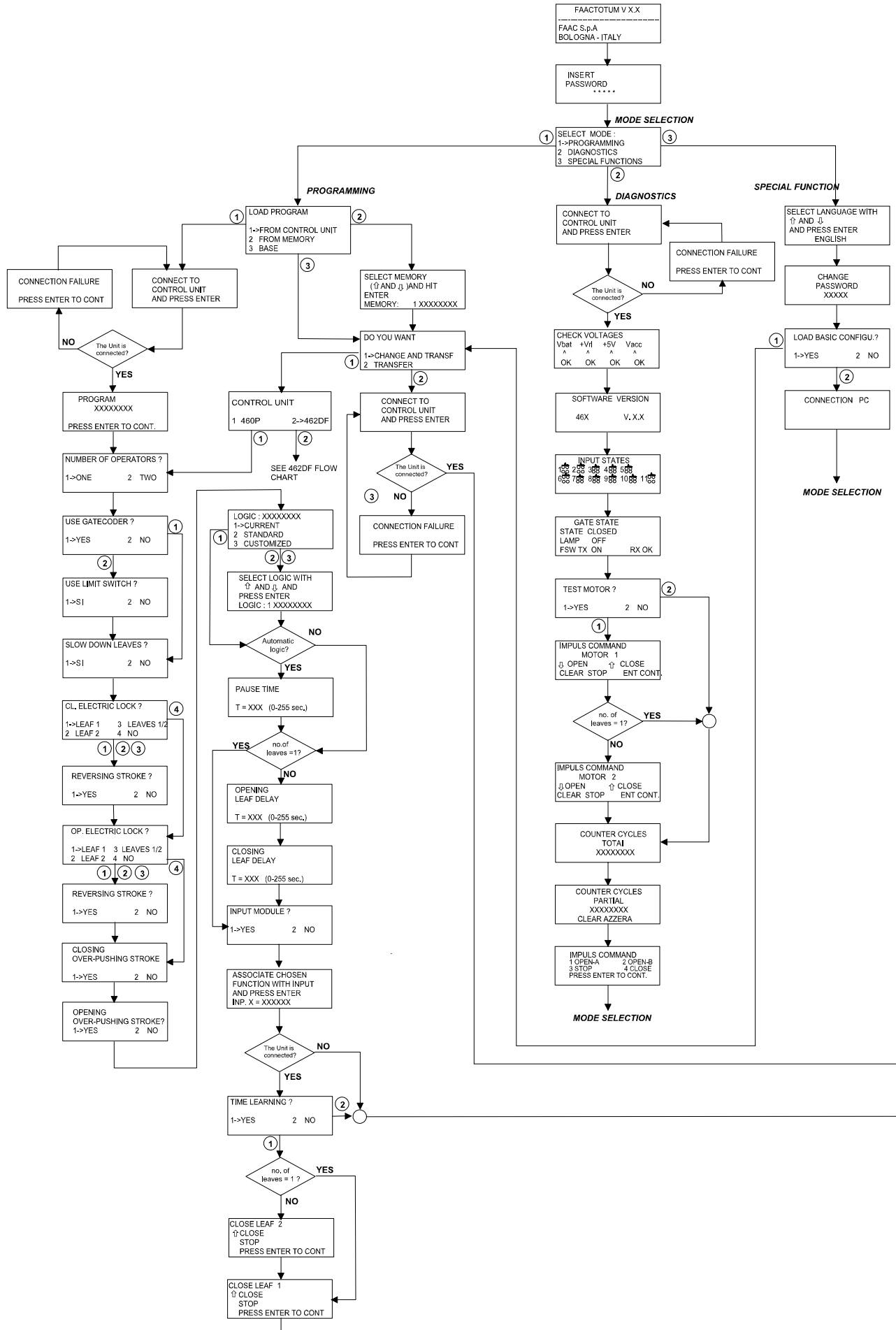
- 1) enter the CHANGE ACCESS CODE menu.
- 2) press CLEAR.

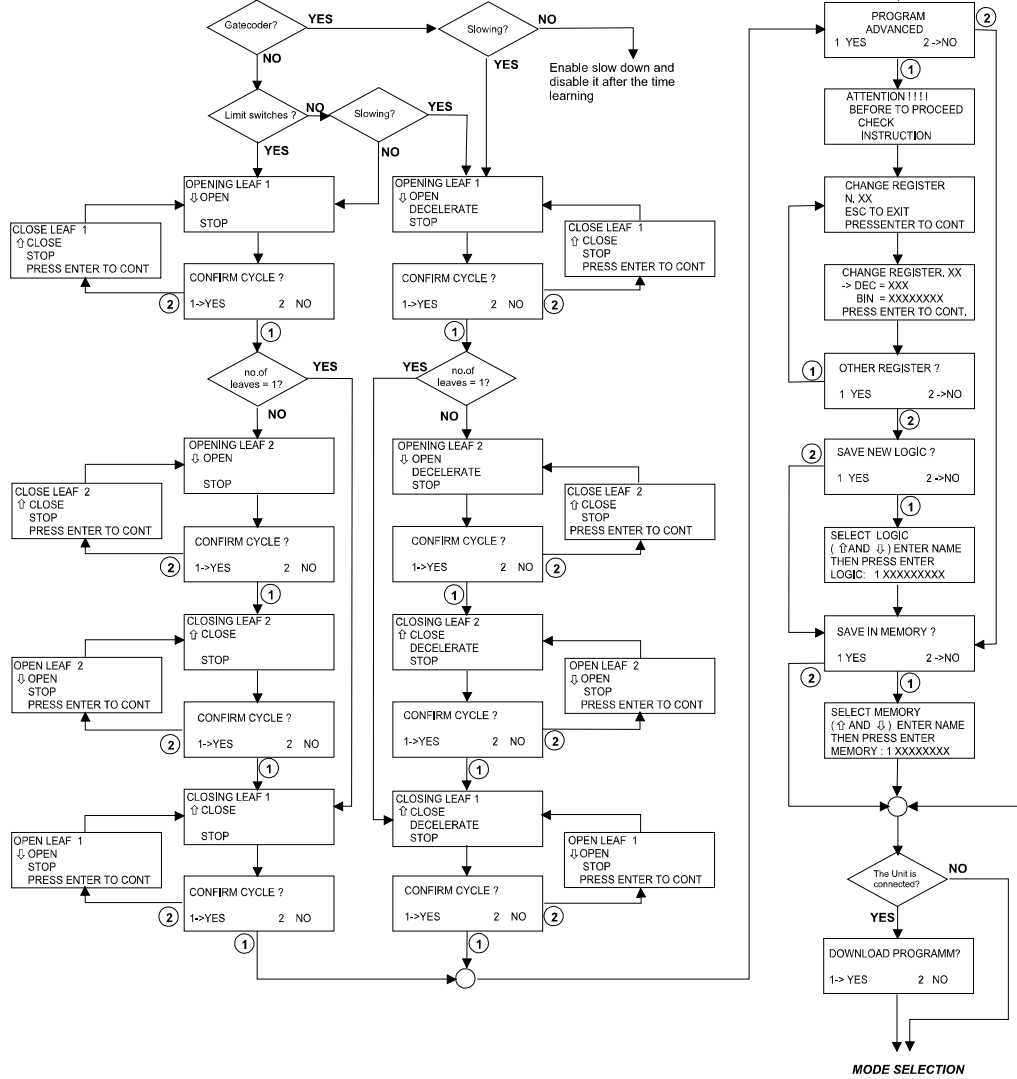
Attention: activating the code limits access to the programmer but has no effect on the equipment.

4.4. Programming

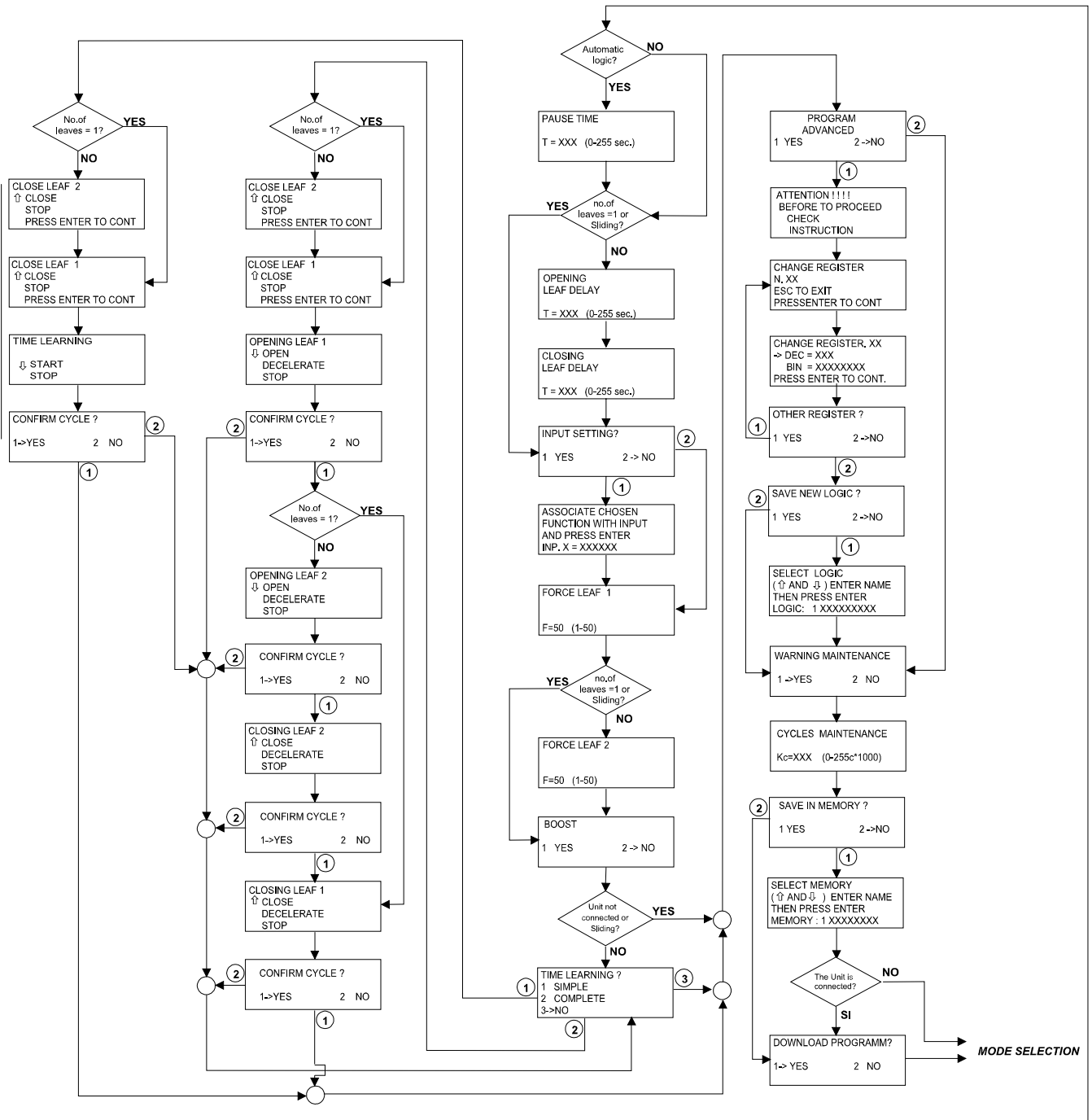
The sequences of the programming menus for equipment 460P and 462DF are indicated in the flow-charts in paragraphs 4.4.1 and 4.4.2. The sequences differ depending on the connected equipment.

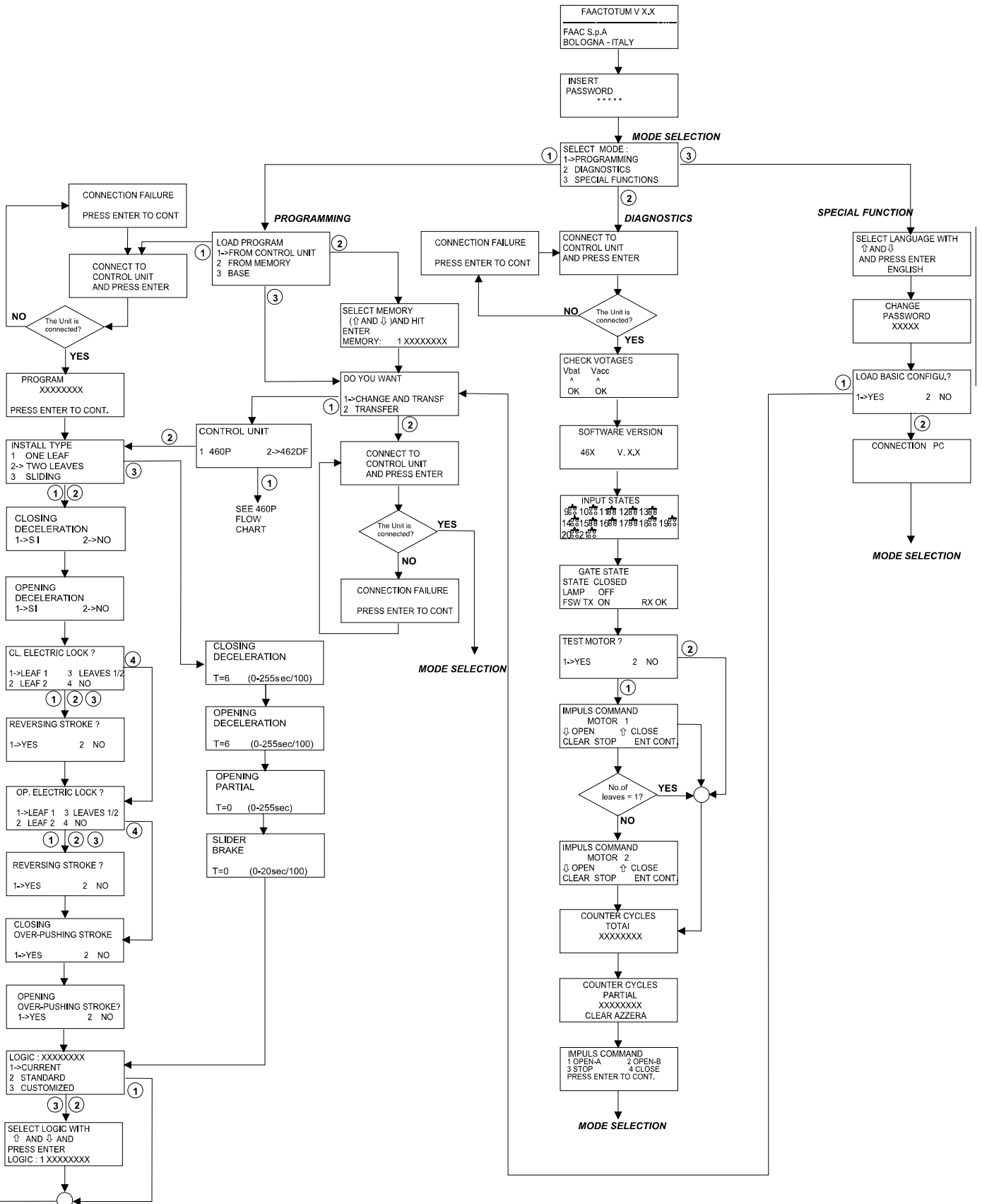
4.4.1. Flow chart with 460P unit





4.4.2. Flow chart with 460P unit





5. SETTING REGISTERS

The registers are the electronic “containers” in which the characteristics and information required for operation of the automation are written. The registers are identified by a number and consist of 8 bits each.

Each bit has a specific meaning and its setting (possible values 0 and 1) modifies the behaviour of the automation.

Every time a programming cycle is performed, the FAAC TUM automatically sets the registers according to the selections that have been made in the various menus. However, by entering Advanced Programming, it is possible to modify the settings of the registers directly.




Some registers are devoted to defining the effect of the pulse according to the gate state. These are the so-called “Logic registers”. By modifying these registers it is possible to create customised operating logics and save them in the FAAC TUM memory. The other “System configuration registers” contain parameters which determine operation of the automation regardless of the type of logic.

To modify a register, refer to its number to select it and identify the bit to be set by following the tables given: the meanings of the 0 and 1 settings are given for each bit.

A value expressed in seconds must be entered in the registers containing times.

5.1. Register modification

Procedure for modifying registers:

- Select the ADVANCED PROGRAMMING menu.
- Select the number of the register you wish to modify.
- Type in the decimal value or, if modifying a single bit, press  to select the modification of the binary value and  or  to select the bit, as shown in fig. 7, and modify the value. Character X indicates the bits whose value depends on other settings and which must not be modified.
- Press ENTER to confirm the modification or press ESC to cancel it.

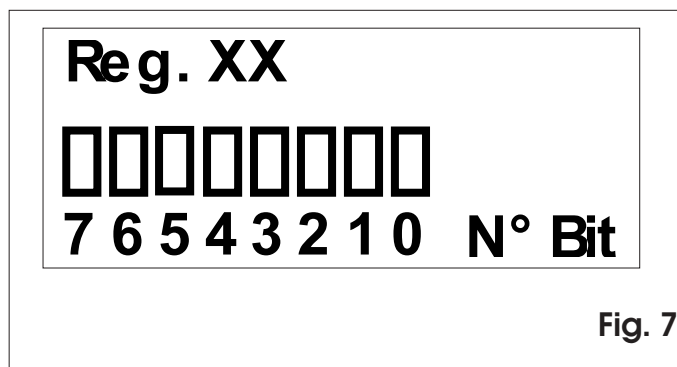


Fig. 7

REGISTERNO.	VALUE	MEANING	DEFAULT
1	0XXXXXXX	Main power supply at 50 Hz	50 Hz
	1XXXXXXX	Main power supply at 60 Hz	
2 (b)	XXXXXXX0	200 ms interruption of power supply to motor before slow-down	XXXXXXX0
	XXXXXXX1	No interruption of power supply to motor before slow-down	
3	XXXX0XXX	Timed partial opening on two sliding gates (master-slave conf.) disabled	Disabled
	XXXX1XXX	Timed partial opening on two sliding gates (master-slave conf.) enabled (see reg. 95 and notes)	
4	XXXXXXX0	Automatic closing at switch-on disabled	Disabled
	XXXXXXX1	Automatic closing at switch-on enabled	
6	XXXXXX11	Timer function activated (see reg. 10 and Chapter 6)	XXXXXX00
	XX0XXXXX	Timed/degree free-leaf partial opening disabled	Disabled
	XX1XXXXX	Timed/degree free-leaf partial opening enabled (see reg. 95)	
	00XXXXXX	After EMERG command was activated, reset to restore operation	00XXXXXX
	01XXXXXX	EMERG command is disabled on release	
11XXXXXX	EMERG command is disabled on release and closing is commanded		
	XXX1XXXX	Partial opening pause time different from total opening time (see reg. 43)	XXX0XXXX
7	XXXXXXX0	EMERG command activates immediate opening	XXXXXXX0
	XXXXXXX1	EMERG command activates immediate closing	
10	XX1X1XX1	Timer function activated (see reg. 6 and Chapter 6)	XX0X0X0
12	XXX0XXXX	Timed reversal on recognition of obstacle during closure (see reg. 49)	XXX0XXXX
	XXX1XXXX	Complete reversal when obstacle recognised during closure	
13	XXX0XXXX	Complete reversal on recognition of obstacle during opening (see reg. 50)	XXX0XXXX
	XXX1XXXX	Complete reversal on recognition of obstacle during opening	
14	XXXXXX0X	Pre-flashing at end of pause disabled	Disabled
	XXXXXX1X	Pre-flashing at end of pause enabled (see reg. 46)	
	XXXXX0XX	Flashing lamp OFF on pause	OFF
	XXXXX1XX	Flashing lamp ON on pause	
	0000XXXX	Indicator-light output on standard operation	0000XXXX
	0100XXXX	Indicator-light output active during closing	

REGISTER NO.	VALUE	MEANING	DEFAULT
14	1000XXXX	Indicator-light output used as courtesy light command (see reg.79)	Disabled
	0010XXXX	Indicator-light output used as partial opening status output	Disabled
	0011XXXX	Indicator-light output used as output for SAFE CL or SAFE OP tripped status	Disabled
	1001XXXX	Indicator-light output used as EMERGENCY status output	Disabled
	1010XXXX	Indicator-light output used as open / open on pause status output	Disabled
	1011XXXX	Indicator-light output used as opening movement status output	Disabled
	1100XXXX	Indicator-light output used as closing movement status output	Disabled
	1101XXXX	Indicator-light output used as output for STOP input activation status	Disabled
	1110XXXX	Indicator-light output used as pause status output	Disabled
	1111XXXX	Indicator-light output used as closed status output	Disabled
	0101XXXX	Indicator-light output used as OPEN-SLAVE command in MASTER operating mode (see notes)	Disabled
42	SECONDS	Pause time	25
43	SECONDS	Partial opening pause time (see reg. 6)	5
44	SECONDS	Reduced pause time	5
45	SECONDS	Opening pre-flashing time	0
46	SECONDS	Closing pre-flashing time	0
49	SECONDS	Timed opening time (on tripping of edge or anti-crushing Gatecoder)	2
50	SECONDS	Timed closing time (on tripping of edge or anti-crushing Gatecoder)	2
51	SECONDS	Time of final opening at full speed (over-pushing stroke on opening)	0
52	SECONDS	Time of final closing at full speed (over-pushing stroke on closing)	0
53	SECONDS	Obstacle detection time (at full speed)	1
54	SECONDS	Stop limit detection time (on slow-down)	4
55	SECONDS	Reverse stroke duration	1
56	SECONDS	Excitation time of electric lock (must always be shorter than OP/CL leaf delay)	1
79	SECONDS	Courtesy light ON time (see reg.14)	100
80 (a)	SECONDS	Extra time in case of interrupted cycle	5
81 (b)(c)	SECONDS	Extra time at end of operation (operation without slow-down)	2
82 (b)(c)	SECONDS	Extra time at end of operation (operation with slow-down)	6
83	XXXX1XXX	Count of Gatecoder pulses with idle motor ON	XXXX0XXX
	X1XXXXXX	Operation with Gatecoder without mechanical stop on opening	X0XXXXXX
84	XXXXX0XX	Obstacle and stop limit detection time with Gatecoder in 1 second steps	XXXXX0XX
	XXXXX1XX	Obstacle and stop limit detection time with Gatecoder in 4 hundredths of a second steps (Barriers)	
	XX1XXXXX	Operation as MASTER (see Paragraph 7.4.)	XX0XXXXX
85	XXXXXXX1	NC/NO contact reversed when operating with indicator-light output used as status output (see reg.14)	XXXXXXX0
	XXXXXX1X	NC/NO contact reversed when operating with - TX FSW output used as status output (see reg.85)	XXXXXX0X
	0000XXXX	-TX FSW output on standard operation	Enabled
	1000XXXX	-TX FSW output used as courtesy light command (see reg.79)	Disabled
	0010XXXX	-TX FSW output used as partial opening status output	Disabled
	1001XXXX	-TX FSW output used as EMERGENCY status output	Disabled
	1010XXXX	-TX FSW output used as open / open on pause status output	Disabled
	1011XXXX	-TX FSW output used as opening movement status output	Disabled
	1100XXXX	-TX FSW output used as closing movement status output	Disabled
	1101XXXX	-TX FSW output used as STOP activation status output	Disabled
	1110XXXX	-TX FSW output used as pause status output	Disabled
	1111XXXX	-TX FSW output used as closed status output	Disabled
	0110XXXX	-TX-SFW output used as CLOSE-SLAVE command in MASTER operating mode (see Par. 7.4.)	Disabled
	0111XXXX	-TX-SFW output used as limit-switch status in SLAVE operating mode (see Par. 7.4.)	Disabled
87 (b)	Sec./100	The movement starts at slow-down speed for the set time (Soft Start) max. 2.5sec	0
95	Sec./Degrees	Seconds (or degrees), partial opening (see reg. 6)	0
98	0XXXXXXX	Electric locks command 12 Vac	0XXXXXXX
	1XXXXXXX	Electric locks command 24 Vdc	

(a) The set time is fully used in the operation with slow-down, and is halved in the operation without slow-down. Default is 5 in the 462 equipment, from the 1.2 version on - it was 0 in the previous ones.

(b) Present only in the 462 from version 1.2 on

(c) these parameters are changed to default values whenever a learning operation is performed

REGISTER NO.	VALUE	MEANING	DEFAULT
100 (b)	00000000	Forced opening and closing commands disabled	00000000
	00010100	EMERG = forced opening command; CLOSE = forced opening command	
	00010010	EMERG = forced opening command; CLOSE = forced opening command	
	00010010	EMERG = forced opening command; OPEN B = forced opening command	
	00101000	FCA2 = forced opening command; FCC2 = forced opening command	

(a) The set time is fully used in the operation with slow-down, and is halved in the operation without slow-down. Default is 5 in the 462 equipment, from the 1.2 version on - it was 0 in the previous ones.

(b) Present only in the 462 from version 1.2 on.

(c) these parameters are changed to default values whenever a learning operation is performed

6. TIMER FUNCTION

The 462DF electronic control unit can be programmed for access control via an external timer.

Use logic A only.

Operating notes:

1) Closure of timer contact

The leaf or leaves open and remain open until the timer contact reopens.

2) Opening of timer contact

The leaf/leaves close/s and the automated system prepares for normal operation.

3) If the power supply fails during the opening time period controlled by the timer, when power returns the 462DF powers the motors to open, thereby returning the leaf or leaves to the open condition.

4) If the timer acts on OPEN B (free leaf), and if the total opening commands (OPEN-A) is sent while the free leaf is open, this causes the other leaf to open, and it closes after pause time is up.

Make the connection as shown in Fig.8, choosing whether the timer is to act on total opening (OPEN-A) or partial opening (OPEN-B) of the leaves and set the following registers.

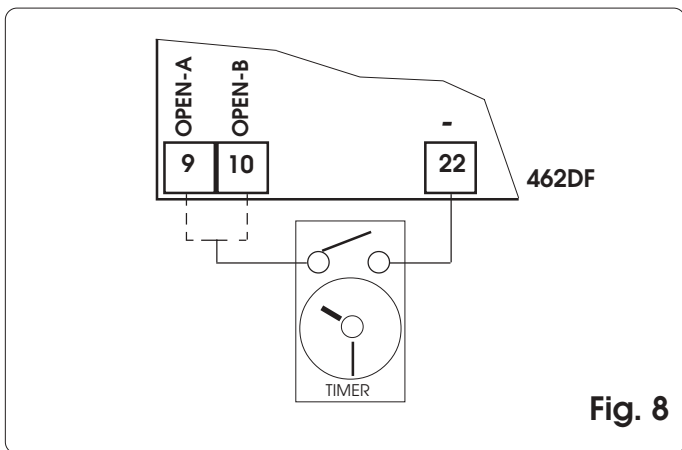


Fig. 8

REG. No.	VALUE	FUNCTION	DEFAULT
6 *	XXXXXX11	timer function	XXXXXX11
10 *	XX1X1XX1	timer function	XX0X0XX0

Default: timer function disabled

7. 462DF EQUIPMENT

7.1. Gatecoder and limit-switch connection

Inputs 18,19,20,21 of 462DF are designed for the connection of opening and closing limit-switches which, according to type of programming - can command either leaf stop or start of deceleration. The non-used limit-switches must be jumper connected (if none are used, this is unnecessary).

Gatecoders can be installed to detect the leaf's angular position and obtain the electronic anti-crushing function and deceleration.

The limit-switches and Gatecoders can also be used combined. To wire, consult fig. 9, 10, 11.

FCA1 - Leaf 1 opening limit-switch

FCC1 - Leaf 1 closing limit-switch

FCA2 - Leaf 2 opening limit-switch

FCC2 - Leaf 2 closing limit-switch

N.B.: Maximum configurations are shown on the drawings. All intermediate configurations are allowed, using only some elements (only 1 Gatecoder, only 1 limit-switch, 2 Gatecoders and 2 limit-switches etc.).

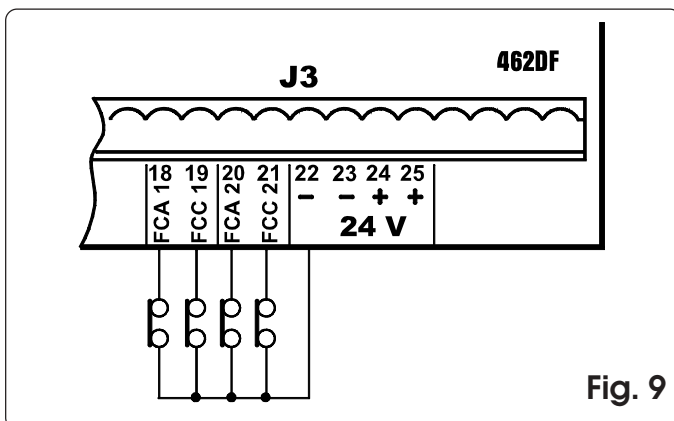


Fig. 9

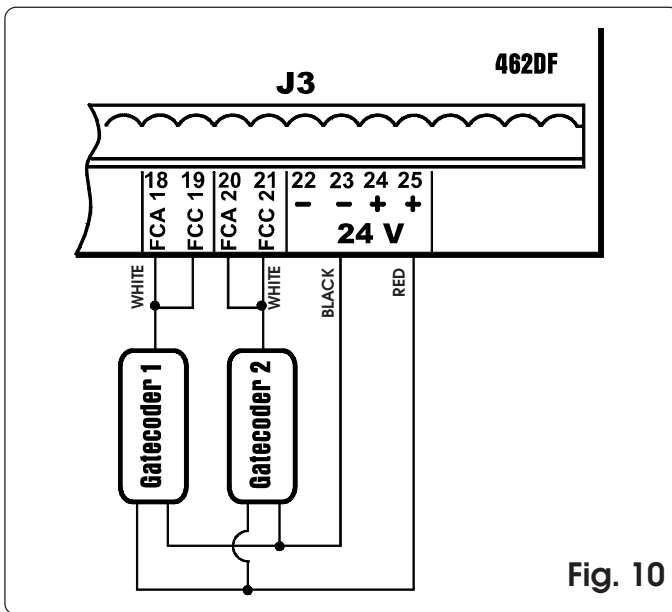


Fig. 10

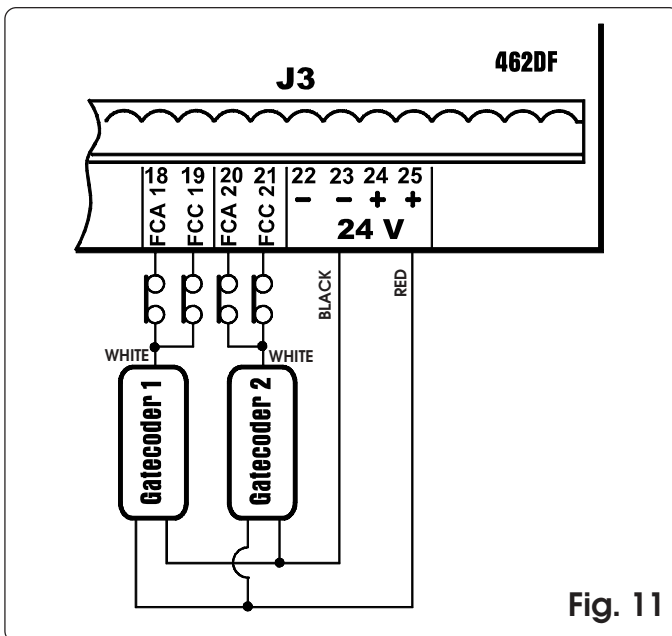


Fig. 11

7.2. Force and Boost function adjustment

The 462DF equipment is also able to command electro-mechanical operators without a mechanical clutch. This is why menus are provided for adjusting the thrust force of the motor and the BOOST function, which makes it possible to ignore the force adjustment and supply maximum thrust in the first second of movement.

7.3. Time learning

Simple learning

Connect FAAC TOTOUM to the 462DF control board, select SIMPLE on the TIME LEARNING screen and press ENTER. 462DF automatically detects the leaf movement control devices connected to it and therefore executes a suitable type of learning.

Timed learning: Press key to begin the cycle and press it again when leaf 2 reaches the opening limit stop.

Learning with Gatecoders: Press key to begin the cycle - when the leaves reach the opening limit stop, the gatecoders detect the stopping of the movement and the board commands the operators to block. The cycle has ended.

Learning with limit-switches: Press key to begin the cycle - when the opening limit-switches are tripped, the operators are commanded to stop. Press key to end the cycle.

Learning with limit-switches and Gatecoders: Press key to begin the cycle - when the opening limit-switches are tripped, the operators are commanded to stop. The cycle has ended.

Note: in two swing-leaf systems, the movement control devices (gatecoders and/or limit-switches) must be present on both leaves. Otherwise, complete learning must be performed.

Complete learning

Connect FAAC TOTOUM to the 462DF control board, select COMPLETE on the TIME LEARNING screen and press ENTER. 462DF automatically detects the leaf movement control devices connected to it and therefore executes a suitable type of learning.













If an operation is cancelled during learning, the procedure will be re-started from the beginning.

Timed learning:

- Press to command opening of leaf 1
- Press to command slow down of leaf 1
- Press to command stop of leaf 1
- Press to command opening of leaf 2
- Press to command slow down of leaf 2
- Press to command stop of leaf 2
- Press to command closure of leaf 2
- Press to command slow down of leaf 2
- Press to command stop of leaf 2
- Press to command closure of leaf 1
- Press to command slow down of leaf 1
- Press to command stop of leaf 1









Note: The learning cycle shown above refers to two swing-leaf systems; if only one leaf is present, the messages for leaf 2 will not be shown.



Learning with Gatecoders:

- Press  to command opening of leaf 1
- Press  to command slow down of leaf 1
- Wait for gatecoder to detect arrival at the limit stop, and for the motor to stop and then press 
- Press  to command opening of leaf 2
- Press  to command slow down of leaf 2
- Wait for gatecoder to detect arrival at the limit stop, and for the motor to stop and then press 
- Press  to command closure of leaf 2
- Press  to command slow down of leaf 2
- Wait for gatecoder to detect arrival at the limit stop, and for the motor to stop and then press 
- Press  to command closure of leaf 1
- Press  to command slow down of leaf 1
- Wait for gatecoder to detect arrival at the limit stop, and for the motor to stop and then press 









Notes: limit stops for both opening and closing must be installed in the system. The learning cycle shown above refers to two swing-leaf systems; if only one leaf is present, the messages for leaf 2 will not be shown.



Learning with limit-switches:

- Press  to command opening of leaf 1
- Leaf 1 begins to slow down when the FCA1 limit-switch is tripped
- Press  to command stop of leaf 1
- Press  to command opening of leaf 2
- Leaf 2 begins to slow down when the FCA2 limit-switch is tripped
- Press  to command stop of leaf 2
- Press  to command closure of leaf 2
- Leaf 2 begins to slow down when the FCC2 limit-switch is tripped
- Press  to command stop of leaf 2
- Press  to command closure of leaf 1
- Leaf 1 begins to slow down when the FCC1 limit-switch is tripped
- Press  to command stop of leaf 1

Note: if no limit-switch is installed in the system, the relevant input must be connected to the -24V output and the slow-down command must be manually sent from FAACTOTUM by pressing key  (when opening) or  (when closing). The learning cycle shown above refers to two swing-leaf systems; if only one leaf is present, the messages for leaf 2 will not be shown.

Learning with limit-switches and Gatecoders:

- Press  to command opening of leaf 1
- Leaf 1 begins to slow down when the FCA1 limit-switch is tripped
- Wait for gatecoder to detect arrival at the limit stop and for the motor to stop and then press 
- Press  to command opening of leaf 2
- Leaf 2 begins to slow down when the FCA2 limit-switch is tripped
- Wait for gatecoder to detect arrival at the limit stop and for the motor to stop and then press 
- Press  to command closure of leaf 2
- Leaf 2 begins to slow down when the FCC2 limit-switch is tripped
- Wait for gatecoder to detect arrival at the limit stop and for the motor to stop and then press 
- Press  to command closure of leaf 1
- Leaf 1 begins to slow down when the FCC1 limit-switch is tripped
- Wait for gatecoder to detect arrival at the limit stop and for the motor to stop and then press 

Note: if no limit-switch is installed in the system, the relevant input must be connected to the gatecoder output and the slow-down command must be manually sent from FAACTOTUM by pressing key  (when opening) or  (when closing). Limit stops for both opening and closing must be installed in the system. The learning cycle shown above refers to two swing-leaf systems; if only one leaf is present, the messages for leaf 2 will not be shown.

7.4. Installation of two 462DF unit in Master and Slave configuration

For double sliding gates, two 462DF units can be used in MASTER-SLAVE configuration to command the two operators in a mirror way. In this configuration, the MASTER board manages all commands to the automated system and controls synchronous movement of the SLAVE board, whereas the latter manages the second operator and the relevant braking and stop commands, etc.

The two units must be inter-connected to each other with the connections shown in fig. 12. The FCC2 input of the MASTER unit must be connected to - (terminals 22 and 23), and the connection of the photocells (usually wired on terminal -TX FSW) must be moved to - (terminals 22 and 23).

All accessories, safety devices, and pulse generators must be connected to the MASTER board. In this configuration, the indicator-light cannot be installed and the FAILSAFE function cannot be set.

The inputs of the safety devices on the SLAVE board must be jumper-connected toward - (terminals 22 and 23), or be disabled from the INPUTS CONFIGURATION menu of FAAC TOTUM.

The type of SLIDING system and the relevant slow-down and braking data must be set on both units.

The Master-Slave configuration can also be used in mixed leaf-sliding applications.

The logic selected for managing the automated system must be set on the MASTER unit, and the following modifications must be carried out.

- Reg. 3: XXXX1XXX (partial opening for both leaves)
- Reg. 14: 0101XXXX (OPEN command to SLAVE)
- Reg. 84: XX1XXXXX (setting of MASTER operation)
- Reg. 85: 0110XXXX (CLOSE command to SLAVE)

The C Logic must be set on the SLAVE equipment, and the following modifications must be performed:

- Reg. 5: XX1XXXXX
- Reg. 7: XXXXXX1X
- Reg. 85: 0111XXXX (signalling to Master that limit-switch was tripped)

Note: the registers must be modified after the function logic has been set

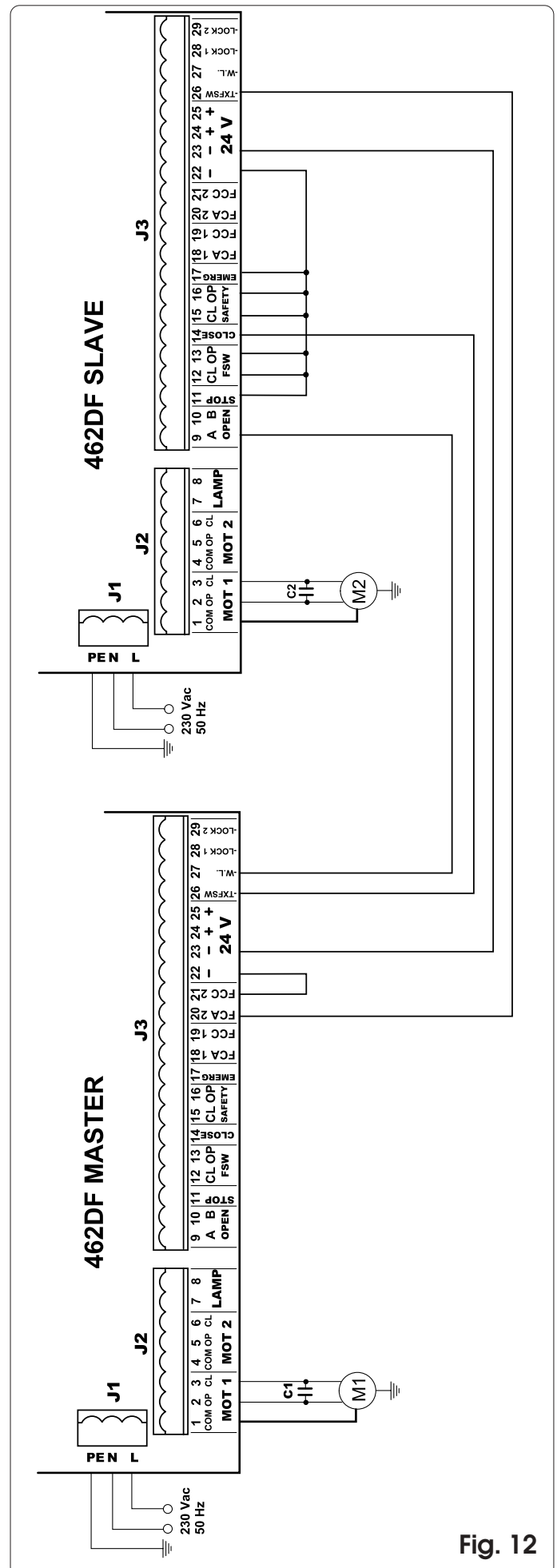


Fig. 12

PULSES										
LOGIC "A"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves and recloses after pause time	opens single leaf and recloses after pause time	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	no effect (1)	no effect	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= closes (1) CLOSE= closes
OPEN ON PAUSE	recloses leaves immediately (1)	recloses leaf/leaves immediately	recloses leaf/leaves immediately	stops	no effect -opening inhibited-	freezes pause until disengagement (2) -closure inhibited-	freezes pause until disengagement (2) -OPEN/CLOSE inhibited-	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	closes the leaves (1)	closes the leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -opening inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

(2) If the residual pause time is shorter than reduced pause time, it closes after the reduced pause time when the safeties are disengaged. The reduced pause time can be set in REG. No. 44 (default 5 sec.).

PULSES										
LOGIC "S"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves and recloses after pause time	opens single leaf and recloses after pause time	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	recloses leaves immediately (1)	recloses leaf/leaves immediately	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= closes (1) CLOSE= closes
OPEN ON PAUSE	recloses leaves immediately (1)	recloses leaf/leaves immediately	recloses leaf/leaves immediately	stops	no effect -opening inhibited-	freezes pause until disengagement (2) -closure inhibited-	freezes pause until disengagement (2) -OPEN/CLOSE inhibited-	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	closes the leaves (1)	closes the leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

(2) If the residual pause time is shorter than reduced pause time, it closes after the reduced pause time when the safeties are disengaged. The reduced pause time can be set in REG. No. 44 (default 5 sec.).

PULSES										
LOGIC "E"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	stops (1)	stops	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= closes (1) CLOSE= closes
OPEN	recloses leaf/leaves immediately (1)	recloses leaf/leaves immediately	recloses leaf/leaves immediately	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	close the leaves (1)	closes the leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

PULSES										
LOGIC "EP"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	stops (1)	stops	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= closes (1) CLOSE= closes
OPEN	recloses leaves immediately (1)	recloses leaf/leaves immediately	recloses leaf/leaves immediately	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	stops	stops	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	Inverts the direction (1)	Inverts the direction	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

PULSES										
LOGIC "p"	OPEN-A	OPEN-B	CLOSE	STOP	F5W-OP	F5W-CL	F5W-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	no effect (1)	no effect	opens leaf/leaves and recloses after reduced pause time (5 s) (2)	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= closes (1) CLOSE= closes
OPEN	no effect (1)	no effect	closes the leaf/leaves after shortened pause time (5 sec) (2)	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	stops and when disengaged continues to close	stops and when disengaged continues to close	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	opens leaves	opens leaf/leaves	closes the leaf/leaves after shortened pause time (5 sec) (2)	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited- memory stores CLOSE	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

☞ The effects of an active impulse on the other inputs is given in brackets.

- (1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.
 (2) The reduced pause time can be set in REG. No. 44 (default 5 sec.).

PULSES										
LOGIC "B"	OPEN-A	OPEN-B	CLOSE	STOP	F5W-OP	F5W-CL	F5W-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	no effect (1)	no effect	no effect	stops	stops	no effect	stops (OPEN/CLOSE inhibited)	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= opens CLOSE= closes
OPEN	no effect (1)	no effect	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	no effect (1)	no effect	no effect	stops	no effect	stops	stops (OPEN/CLOSE inhibited)	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes
STOPPED	opens leaves	opens leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

☞ The effects of an active impulse on the other inputs is given in brackets.

- (1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

LOGICA "C"	HOLD TO RUN CONTROLS				PULSES						
	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL	
GATE STATUS											
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	
OPENING	no effect (1)	no effect	no effect	stops	stops	no effect	stops (OPEN/CLOSE inhibited)	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= opens CLOSE= closes	
OPEN	no effect (1)	no effect	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	
CLOSING	no effect	no effect	no effect	stops	no effect	stops	stops (OPEN/CLOSE inhibited)	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes	
STOPPED	opens leaves	opens leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	

☞ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

LOGICA "B/C"	OPENING PULSE/CLOSING HOLD TO RUN CONTROLS							PULSES			
	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL	
GATE STATUS											
CLOSED	opens leaves	opens single leaf	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	
OPENING	no effect (1)	no effect	no effect	stops	stops	no effect	stops (OPEN/CLOSE inhibited)	reverses movement for 2 seconds then stops	no effect	stops movement - when disengaged OPEN= opens CLOSE= closes	
OPEN	no effect (1)	no effect	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	
CLOSING	no effect	no effect	no effect	stops	no effect	stops	stops (OPEN/CLOSE inhibited)	no effect	reverses movement for 2 seconds then stops	stops movement - when disengaged OPEN= opens CLOSE= closes	
STOPPED	opens leaves	opens leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	

☞ The effects of an active impulse on the other inputs is given in brackets.

(1) An OPEN-A impulse during a pedestrian cycle (OPEN-B), activates both leaves in opening.

PULSES										
LOGICA "AP"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
GATE STATUS										
CLOSED	opens leaves and recloses after pause time	opens single leaf and recloses after pause time	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPENING	Stops operation (1)	Stops operation	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement when disengaged OPEN= closes (1) CLOSE= closes
OPEN ON PAUSE	Stops operation (1)	Stops operation	recloses leaf/leaves immediately	stops	no effect -opening inhibited-	recounts pause time	recounts pause time -OPEN/CLOSE inhibited-	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
CLOSING	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement when disengaged OPEN= opens CLOSE= closes
STOPPED	closes the leaves (1)	closes the leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -opening inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ Effects on other active pulse inputs in brackets.

(1) If the cycle began with OPEN-B (released leaf), an OPEN-A pulse will activate both leaves to open.

IMPULSI										
LOGICA "SP"	OPEN-A	OPEN-B	CLOSE	STOP	FSW-OP	FSW-CL	FSW-OP/CL	SAFETY-OP	SAFETY-CL	SAFETY-OP/CL
CLOSED										
OPENING	opens leaves and recloses after pause time	opens single leaf and recloses after pause time	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)	no effect (OPEN inhibited)	no effect	no effect (OPEN inhibited)
OPEN ON PAUSE	Stops operation (1)	Stops operation	no effect	stops	stops opening and when disengaged closes	no effect	stops opening and when disengaged continues to open	reverses movement for 2 seconds then stops	no effect	stops movement when disengaged OPEN= closes (1) CLOSE= closes
CLOSING	Stops operation (1)	Stops operation	recloses leaf/leaves immediately	stops	no effect -opening inhibited-	on release, closes after shortened pause time (3 sec) (2)	on release, closes after shortened pause time (2) (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)
STOPPED	reopens leaves immediately	reopens leaf/leaves immediately	no effect	stops	no effect	changes direction and starts to open	stops and when disengaged starts to open	no effect	reverses movement for 2 seconds then stops	stops movement when disengaged OPEN= opens CLOSE= closes
BLOCCATO	closes the leaves (1)	closes the leaf/leaves	closes leaf/leaves	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)	no effect -opening inhibited-	no effect -closure inhibited-	no effect (OPEN/CLOSE inhibited)

➤ Effects on other active pulse inputs in brackets.

(1) If the cycle began with OPEN-B (released leaf), an OPEN-A pulse will activate both leaves to open.

(2) The reduced pause time can be set in REG. No. 44 (default 5 sec.).

