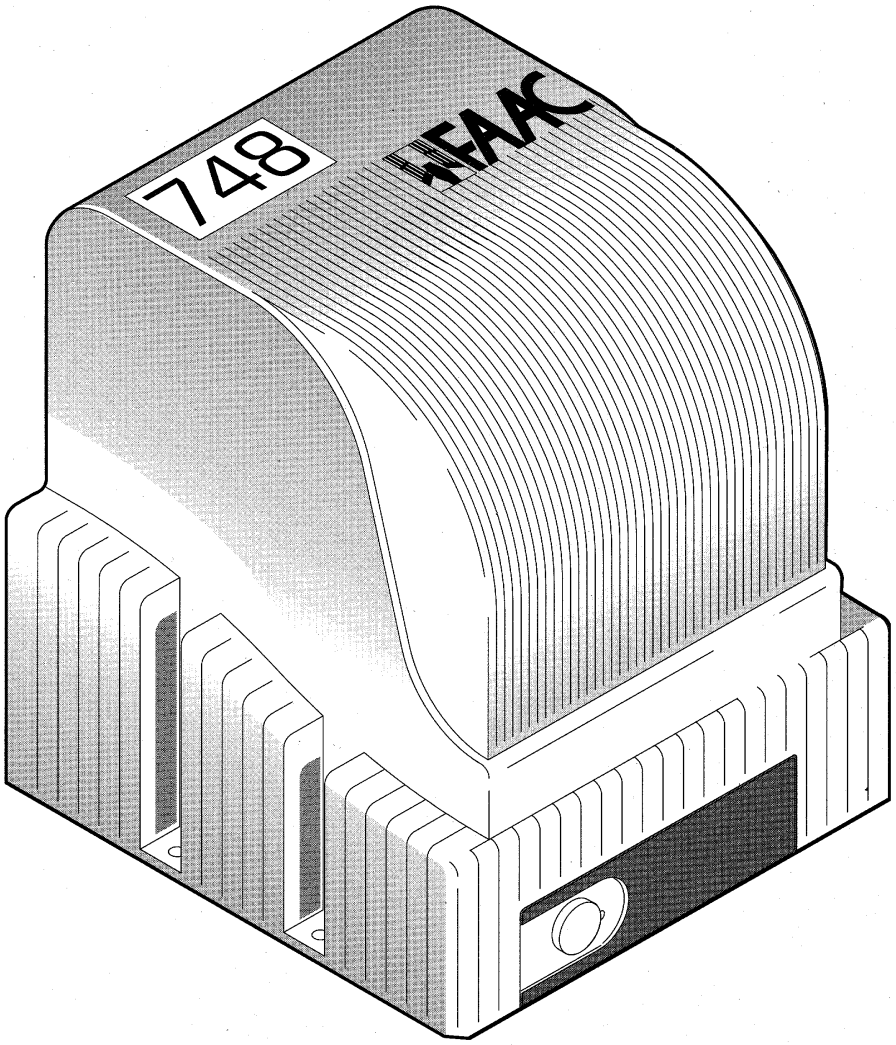
VSS LIMITED
Sales@vssystems.co.uk
0800 018 2324

748 COMPACT



FAAC

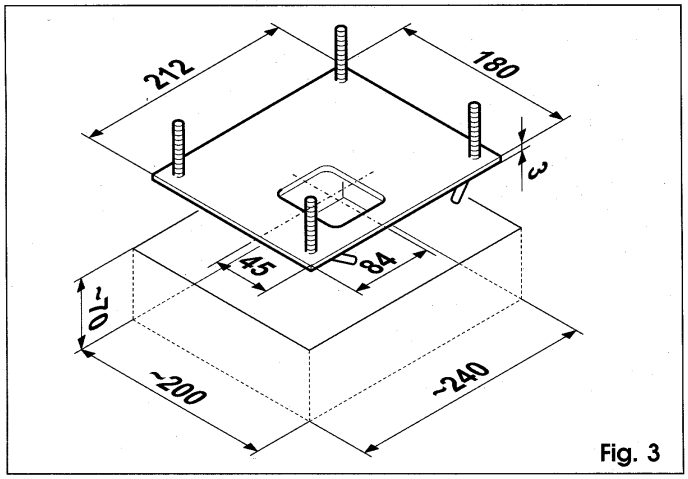


Fig. 3

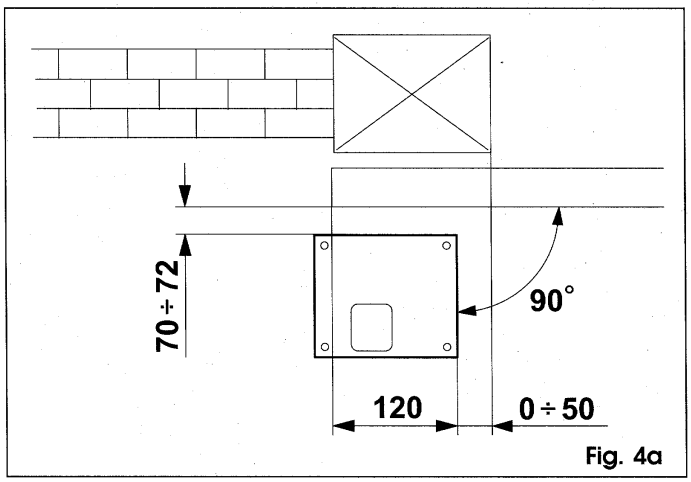


Fig. 4a

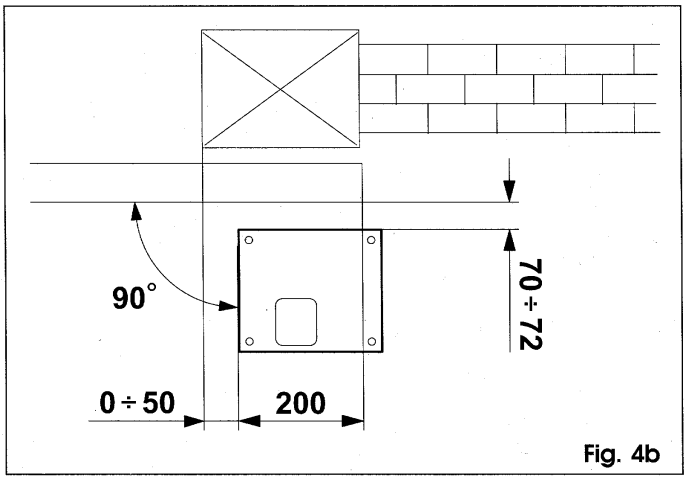


Fig. 4b

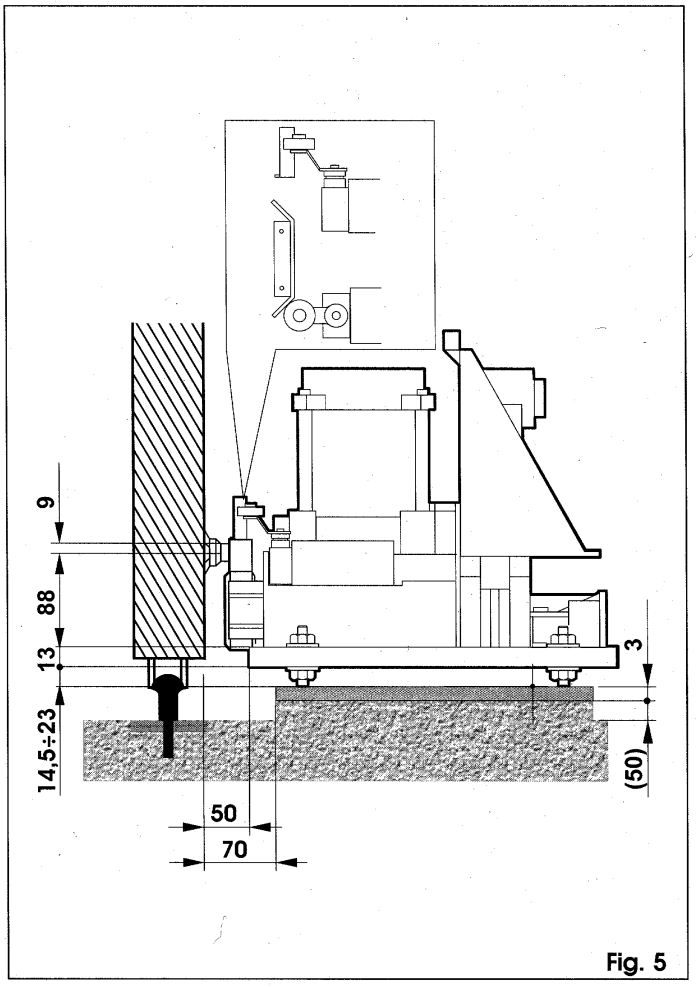


Fig. 5

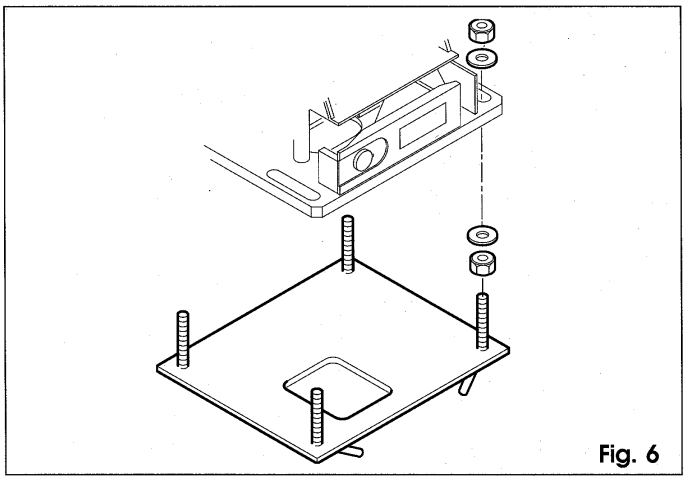


Fig. 6

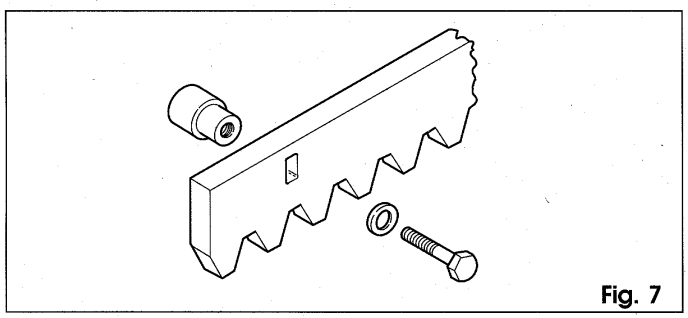


Fig. 7

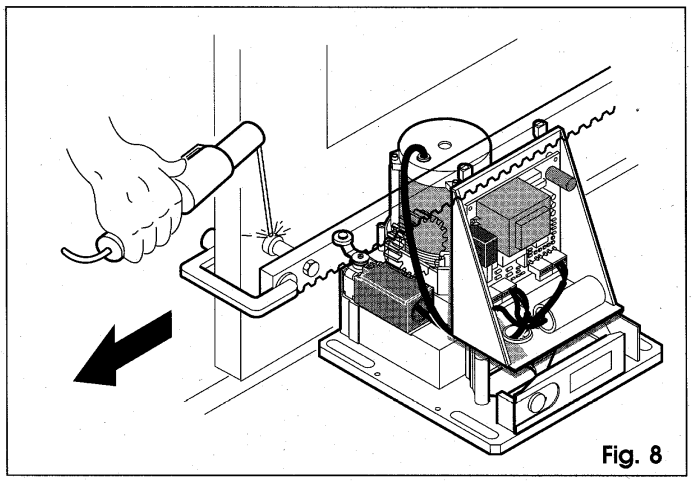


Fig. 8

N.B.: le quote indicate nelle figure sono espresse in mm.
N.B.: dimensions shown in the figures are indicated in mm.
N.B.: Les cotes indiquées sur les figures sont exprimées en mm.
Hinweis: Maßangaben der Abbildungen in mm
N.B.: Las cotas indicadas en las figuras están calculadas en mm.

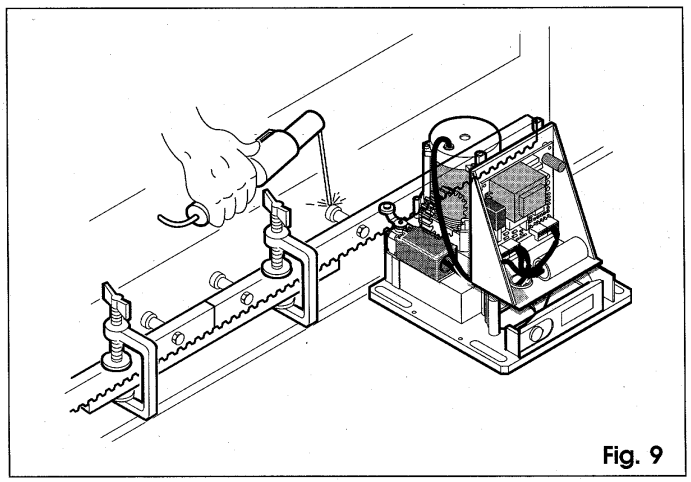


Fig. 9

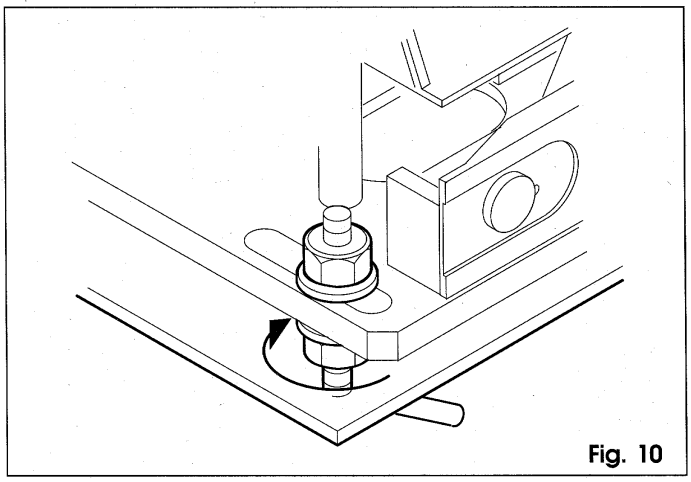


Fig. 10

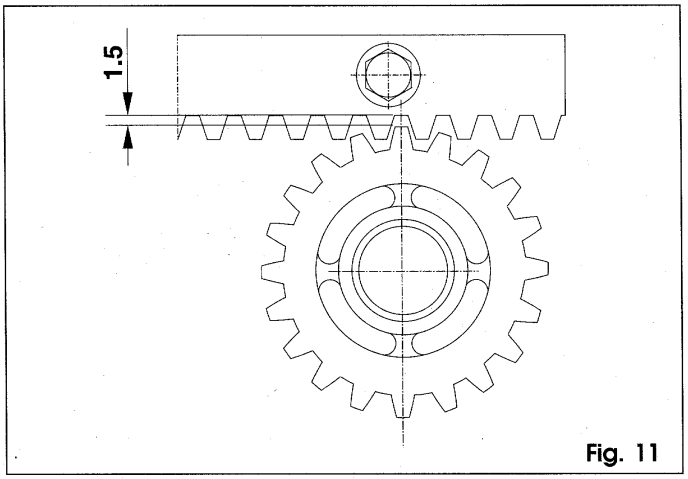


Fig. 11

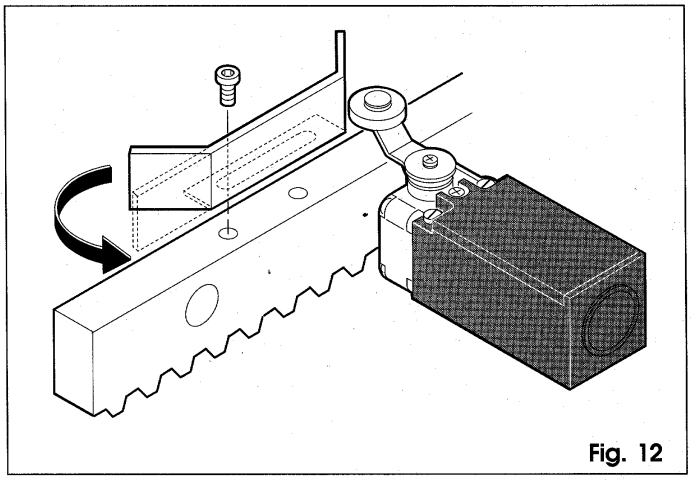


Fig. 12

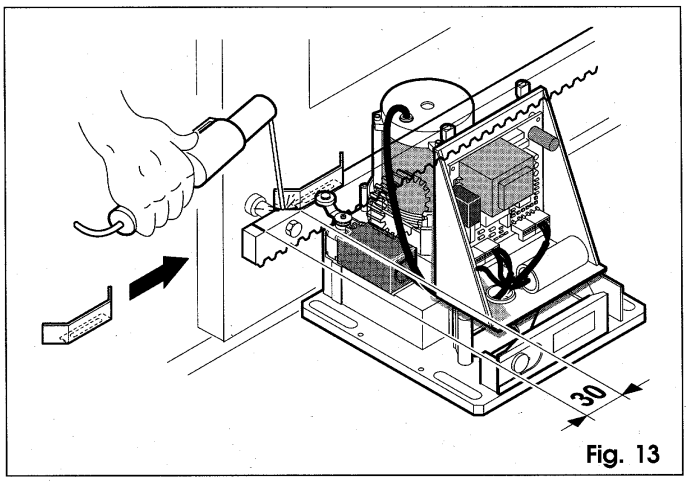


Fig. 13

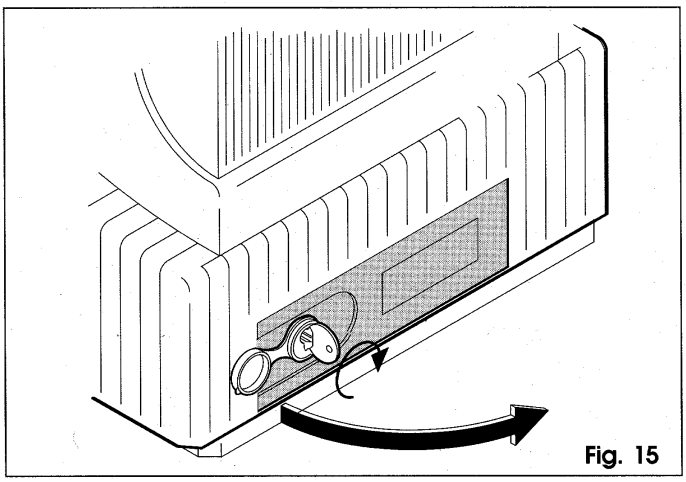


Fig. 15

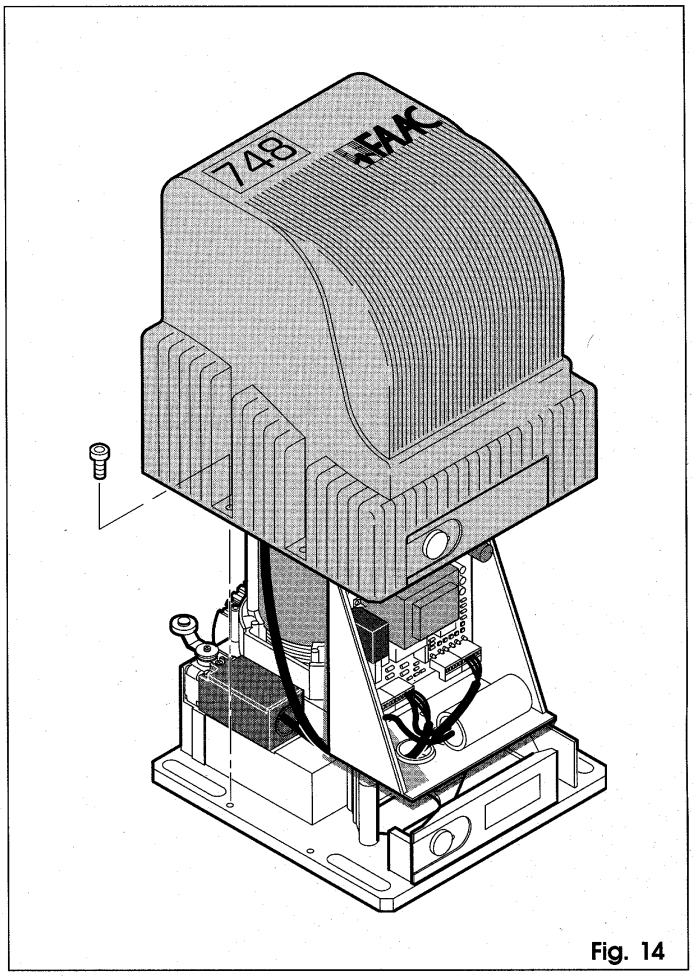


Fig. 14

NORME GENERALI DI SICUREZZA • GENERAL SAFETY STANDARDS • RÈGLES DE SÉCURITÉ ALLGEMEINE SICHERHEITSVORSCHRIFTEN • NORMAS GENERALES PARA LA SEGURIDAD

- Leggere attentamente le istruzioni prima di iniziare l'installazione del prodotto e conservarle per riferimenti futuri.
- Installazione, collegamenti elettrici e regolazioni devono essere effettuati nell'osservanza delle norme di buona tecnica e di sicurezza vigenti (UNI 8612).
- FAAC non è responsabile dell'inosservanza della buona tecnica nella costruzione degli infissi da motorizzare, nonchè delle deformazioni che dovessero intervenire nell'utilizzo.
- Prima d'installare l'automazione apportare tutte le modifiche strutturali relative alla realizzazione dei franchi di sicurezza ed alla protezione e/o segregazione di tutte le zone di cesoiamento, convogliamento e schiacciamento.
- Questo prodotto è stato progettato e costruito esclusivamente per l'utilizzo indicato in questa documentazione. Qualsiasi altro utilizzo non espressamente indicato potrebbe pregiudicare l'integrità del prodotto e/o rappresentare fonte di pericolo.
- FAAC Spa declina qualsiasi responsabilità derivata dall'uso improprio o diverso da quello per cui l'automatismo è destinato.
- Non utilizzare l'apparecchio in atmosfera esplosiva: presenza di gas o fumi infiammabili costituiscono un grave pericolo per la sicurezza.
- Prima di effettuare qualsiasi intervento sull'impianto togliere l'alimentazione elettrica.
- Prevedere sulla rete d'alimentazione dell'automazione un interruttore onnipolare con distanza d'apertura dei contatti uguale o superiore a 3 mm. In alternativa è consigliabile l'uso di un magnetotermico da 6A con interruzione onnipolare.
- Verificare che a monte dell'impianto elettrico vi sia un interruttore differenziale con soglia da 0,03 A.
- Verificare che l'impianto di terra sia realizzato a regola d'arte e collegarvi l'infisso. Collegare inoltre a terra il filo Giallo/Verde dell'automatismo.
- L'utente utilizzatore deve astenersi da qualsiasi tentativo di riparazione o d'intervento diretto e rivolgersi solo a personale qualificato.
- Per la manutenzione utilizzare esclusivamente parti originali FAAC.
- Non eseguire alcuna modifica sui componenti facenti parte il sistema d'automazione.
- I materiali dell'imballaggio (plastica, polistirolo, ecc.) non devono essere lasciati alla portata dei bambini in quanto potenziali fonti di pericolo.
- L'installatore deve fornire tutte le informazioni relative al funzionamento manuale del sistema in caso d'emergenza e consegnare all'utente utilizzatore dell'impianto il libretto d'avvertenze allegato al prodotto.
- L'automazione dispone di una sicurezza antischiacciamento costituita da un controllo di coppia che, se tarato correttamente, è estremamente sicuro ed affidabile.
- In ogni caso FAAC prescrive sempre l'installazione di altri dispositivi di sicurezza, tenendo in considerazione le normative in vigore, l'ambiente di installazione, la logica di funzionamento del sistema, le dimensioni e il peso della struttura da automatizzare.
- I dispositivi di sicurezza (es.: fotocellule, coste sensibili, ecc.) permettono di proteggere eventuali zone di schiacciamento, convogliamento ed in generale di pericolo, dell'automazione.
- Per ogni impianto è indispensabile l'utilizzo di almeno una segnalazione luminosa (es.:FAAC LAMP, MINILAMP, ecc.) nonchè di un cartello di segnalazione fissato adeguatamente sulla struttura dell'infisso.
- FAAC declina ogni responsabilità ai fini della sicurezza e del buon funzionamento dell'automazione, in caso vengano utilizzati componenti dell'impianto non di produzione FAAC.

- Read the instructions carefully before installing the gate automation system. Keep these instructions for future reference.
- Installation, electrical wiring and adjustments must be carried out in compliance with current safety standards.
- FAAC cannot be held responsible for failure to observe technical standards in the construction of gates, or for any deformation of the gates which may occur during use.
- Before installing the gate automation system, make all necessary structural modifications to ensure safety clearances and for the protection and/or isolation of all cutting, entrapment, and crushing areas.
- This equipment should be destined only to the use for which it has been expressly conceived (all equipment). Any other use should be considered improper and therefore dangerous. The maker cannot be held responsible for eventual damage caused by improper, incorrect and unreasonable use.
- Do not use this device in areas subject to explosion: the presence of flammable gas or fumes is a serious hazard.
- Before carrying out any cleaning or maintenance operations, unplug the equipment from the electrical supply network either by removing the plug or by turning off the system's main switch.
- An omnipower switch should be provided for the installation as foreseen by current safety regulations with an opening distance of 3 mm or more on the part of the contacts. Alternatively, use a 6A thermo-magnetic breaker with multi-pole switching.
- Ensure that there is a differential switch up-line of the electrical system, with a trip threshold of 0.03A.
- Check that the earthing plant is in perfect condition and connect it to the gate frame. Also earth the yellow/green wire of the operator.
- The end-user must avoid any attempt to repair or adjust the automation personally; these operations must be carried out exclusively by qualified personnel.
- Use only FAAC original spare parts for maintenance operations.
- Do not carry out any modifications to automation components.
- Packaging material (plastic, polystyrene etc.) is a potential hazard and must be kept out of reach of children.
- The installer must supply all information regarding manual operation of the system in the event of an emergency and provide the end-user with the leaflet attached to the product.
- The operator is fitted with an anti-crush safety system that is a torque control device which guarantees the utmost safety and reliability if properly adjusted.
- In any event, FAAC always recommends the installation of other safety devices, taking into consideration current safety standards, installation site, system operation logics, dimensions and weight of the gate.
- The safety devices (e.g. photocells, safety edges, etc.) will protect the crushing and entrapment areas and general potential hazard areas of the automation.
- Each installation must be fitted with at least one flashing light (e.g. FAAC LAMP, MINILAMP etc.) as well as a warning plate suitably fixed to the gate.
- FAAC cannot be held responsible regarding safety, and correct functioning of the automation in the event that parts other than FAAC original parts are used.

- Lire attentivement les instructions avant de commencer le montage de l'automatisme. Il est conseillé de conserver la notice pour toute consultation future.
- Réaliser l'installation, les branchements électriques et les réglages conformément aux normes en vigueur et aux règles de l'art.
- En cas de non-respect des normes en vigueur ou d'une installation non conforme aux règles de l'art, FAAC ne saurait être tenu pour responsable d'un non fonctionnement du matériel fourni, ou de sa détérioration, ni des accidents corporels ou matériels résultant de cette non conformité.
- Avant d'installer l'automatisme, il faut apporter toutes les modifications structurales permettant à la fois de satisfaire les exigences de sécurité et de protéger et/ou condamner toutes les zones et/ou aires de cisaillement, coincement et écrasement.
- Cet automatisme a été conçu exclusivement pour l'utilisation indiquée sur la présente notice. Tout autre utilisation pourrait compromettre l'efficacité de l'automatisme et/ou représenter une source de danger.
- FAAC décline toute responsabilité en cas d'utilisation impropre ou autre que celle pour laquelle l'automatisme est destiné.
- Ne pas utiliser l'automatisme en atmosphère explosive: la présence de gaz ou de fumées inflammables représentent un grave risque pour la sécurité.
- Avant toute intervention sur l'installation, couper l'alimentation en énergie électrique.
- Prévoir sur le réseau d'alimentation de l'automatisme un interrupteur omnipolaire avec distance d'ouverture des contacts égale ou supérieure à 3 mm. En alternative, il est recommandé l'emploi d'un interrupteur magnéto-thermique de 6 A de calibre avec coupure omnipolaire.
- Vérifier la présence en amont de l'installation électrique d'un interrupteur différentiel avec un seuil de 0,03 A.
- Vérifier l'efficacité de l'installation de terre et y raccorder le portail. Mise à la terre par fil vert/jaune de l'automatisme.
- L'utilisateur doit s'abstenir de faire toute tentative de réparation pour remédier à un défaut, et demander uniquement l'intervention d'un personnel qualifié.
- Utiliser exclusivement des pièces (ou parties) d'origine FAAC pour tous les travaux d'entretien.
- Ne pas procéder à des modifications ou réparations des composants de l'automatisme.
- Tenir à l'écart des enfants tous les matériaux d'emballage (plastique, polystyrène, etc...).
- L'installateur doit fournir toutes les informations relatives au déverrouillage du système en cas d'urgence et la notice accompagnant le produit.
- L'automatisme dispose d'une sécurité anti-écrasement constituée d'un limiteur de couple qui permet d'ajuster la force de poussée du moteur en parfaite adéquation avec le portail.
- Dans tous les cas, FAAC recommande de toujours prévoir d'autres dispositifs de sécurité en tenant compte des normes en vigueur, du site d'installation, de la logique de fonctionnement du système, des dimensions et du poids du portail à motoriser.
- Les dispositifs de sécurité (ex.: cellules photo-électriques, tranches de sécurité, etc...) permettent de protéger des zones et/ou aires dangereuses d'écrasement, de coincement et de cisaillement, pendant le mouvement du vantail.
- FAAC préconise l'utilisation d'au moins une signalisation lumineuse pour chaque système (ex.: FAAC LAMP, MINILAMP, etc...) ainsi que d'une plaque signalétique fixée judicieusement sur la menuiserie du portail.
- FAAC décline toute responsabilité quant à la sécurité et au bon fonctionnement de l'automatisme dans le cas d'utilisation de composants d'une origine autre que FAAC.

- Vor Installation des hierin beschriebenen Produktes die Anleitungen aufmerksam durchlesen und für künftigen Bedarf aufbewahren.
- Installation, elektrische Anschlüsse und Einstellungen haben nach dem bewährten Stand der Technik sowie den geltenden Sicherheitsnormen zu erfolgen.
- FAAC kann nicht für die Mißachtung des technischen Stands bei der Herstellung der anzutreibenden Tore haftbar gemacht werden, destoweniger für die während der Nutzung auftretenden Strukturverformungen.
- Bevor mit der Installation begonnen wird, sind die strukturellen Umbauten im Hinblick auf die erforderlichen Freiräume und den Schutz bzw. die Vermeidung sämtlicher Quetsch-und Scherstellen auszuführen.
- Des vorliegende Produkt ist ausschließlich für den in dieser Dokumentation angegebenen Zweck entwickelt und gefertigt worden. Nicht ausdrücklich erwähnte Einsätze können die Fehlerfreiheit des Produktes beeinträchtigen bzw. eine Gefahrenquelle darstellen.
- FAAC lehnt jedwede Haftung bei unsachgemäßem und bestimmungsfremdem Gebrauch des Antriebs ab.
- Das Produkt nicht in Ex-Bereichen anwenden: Brennbare Gase oder Rauchemissionen sind ein schwerwiegendes Sicherheitsrisiko.
- Vor jeglichen Arbeiten an der Anlage unbedingt die Stromversorgung unterbrechen.
- Das Versorgungsnetz des Antriebs ist durch einen allpoligen Schalter mit Kontaktöffnungsabstand von mindestens 3 mm zu schützen. Als Alternative kann ein 6A Schutzschalter mit allpoliger Unterbrechung verwendet werden.
- Der elektrischen Anlage einen Fehlerstromschutzschalter mit 0,03A Auslöseschwelle vorschalten.
- Den Erdschluß auf Wirksamkeit überprüfen und anschließend mit dem Tor verbinden. Grün/gelbes Antriebskabel ebenfalls erden.
- Der Anwender darf keine eigenmächtigen Reparaturen oder Eingriffe vornehmen, sondern ausschließlich Fachpersonal damit beauftragen.
- Zur Wartung ausschließlich FAAC-Originalteile verwenden.
- Änderungen an Komponenten des Antriebssystems sind untersagt.
- Verpackungsstoffe (Kunststoff, Styropor usw.) stellen eine Gefahrenquelle für Kinder dar und sind daher außerhalb ihrer Reichweite zu verwahren.
- Der Installateur soll sämtliche Informationen zur Notentriegelung des Systems erteilen und dem Anwender die dem Produkt beigestellten Anleitungen aushändigen.
- Die Einklemmsicherheit des Antriebs mit Drehmomentüberwachung ist bei vorschriftsmäßiger Einstellung durch einen äußerst sicheren und zuverlässigen Betrieb gekennzeichnet.
- FAAC fordert auf jeden Fall zum Einbau weiterer Sicherheiten auf, wobei geltende Normen, Installationsumgebung , Betriebslogik des Systems sowie Abmessungen und Gewicht des Tors zu berücksichtigen sind.
- Mit den Sicherheiten (z.B. Lichtschranken, Kontaktleisten usw.) werden Quetsch-und Scherstellen- und allgemeine Gefahrenbereiche während der Torbewegung geschützt.
- Zu jeder Anlage gehört außerdem mindestens eine Leuchtmeldung (z.B. FAAC LAMP, MINILAMP usw.) sowie ein entsprechendes Warnschild an der Torkonstruktion.
- FAAC lehnt jegliche Haftung in punkto Sicherheit und korrekte Antriebsfunktion ab, falls die Anlage mit Fremdkomponenten ausgerüstet ist.

- Lea detenidamente las instrucciones antes de empezar la instalación del equipo y consérvelas para posible consulta futura.
- La instalación, las conexiones eléctricas y las regulaciones deben hacerse observando las normas de buena técnica y de seguridad vigentes.
- La sociedad FAAC no es responsable por el incumplimiento de la buena técnica en la construcción de las cancelas u otros cierres a motorizar, ni por las deformaciones que puedan presentarse con el uso.
- Antes de instalar el sistema automático es preciso hacer todas las modificaciones estructurales relativas a la realización de los laterales de seguridad y a la protección y/o segregación de todas las zonas de corte, empuje y aplastamiento.
- Este sistema ha sido proyectado y construido exclusivamente para el uso indicado en el presente manual. Cualquier otro uso, que no se haya indicado expresamente, podría ser causa de detrimento de la integridad del producto y/o constituir una fuente de peligro.
- La sociedad FAAC SpA declina toda responsabilidad que derive del uso impropio del sistema o diferente al previsto para el mismo.
- No debe usarse el aparato en atmósfera explosiva: la presencia de gas o de humos inflamables constituyen un grave peligro para la seguridad.
- Antes de empezar cualquier operación de mantenimiento del sistema, corte la alimentación eléctrica.
- La red de alimentación eléctrica del sistema debe tener un interruptor omnipolar, con distancia de apertura de los contactos igual o superior a 3 mm. Como alternativa, se aconseja emplear un magnetotérmico de 6A, con interruptor omnipolar.
- Compruebe que antes de la instalación eléctrica hay un interruptor diferencial, con umbral de 0,03 A.
- Compruebe que la conexión a tierra está hecha correctamente y conecte la cancela. Conecte también a tierra el cable Amarillo/Verde del automatismo.
- El usuario debe abstenerse de todo intento de reparación o intervención directa; es preciso consultar siempre personal especializado.
- Para el mantenimiento, utilice exclusivamente piezas originales FAAC.
- No haga ninguna modificación en los componentes del sistema automático.
- Los materiales usados para el embalaje (plástica, poliestireno, etc.) no deben dejarse al alcance de niños, por ser fuentes potenciales de peligro.
- El técnico instalador debe facilitar toda la información relativa al funcionamiento manual del sistema en casos de emergencia y entregarle al usuario del sistema el manual de advertencias que se anexa al producto.
- El sistema automático cuenta con una seguridad antiaplastamiento, constituida por un control de par que, cuando está tarado correctamente, es sumamente seguro y fiable.
- En todo caso, FAAC prescribe siempre la instalación de otros dispositivos de seguridad, teniendo en cuenta las normas vigentes, el ambiente de instalación, la lógica de funcionamiento del sistema, las dimensiones y el peso de la estructura a automatizar.
- Los dispositivos de seguridad (por ej.: fotocélulas, bandas sensibles, etc...) permiten proteger posibles zonas de aplastamiento, de empuje o de peligro en general del sistema automático.
- Para cada equipo es indispensable utilizar por lo menos una señalización luminosa (por ej.: LAMP, MINILAMP, etc.), así como también un cartel de señalización fijado de forma adecuada a la estructura de la cancela.
- La sociedad FAAC declina toda responsabilidad respecto a la seguridad y al correcto funcionamiento del sistema automático, en el caso de que se utilicen para el mismo componentes que no hayan sido producidos por FAAC misma.

748 COMPACT AUTOMATION SYSTEM

The FAAC 748 COMPACT automation system for sliding residential gates is an electromechanical operator that transmits the leaf movement by means of a pinion coupled to a rack fixed to the gate.
The irreversible system locks mechanically when the motor is not running, so it is not necessary to install a lock.
The 748 MP electronic control unit is housed in the operator.

1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

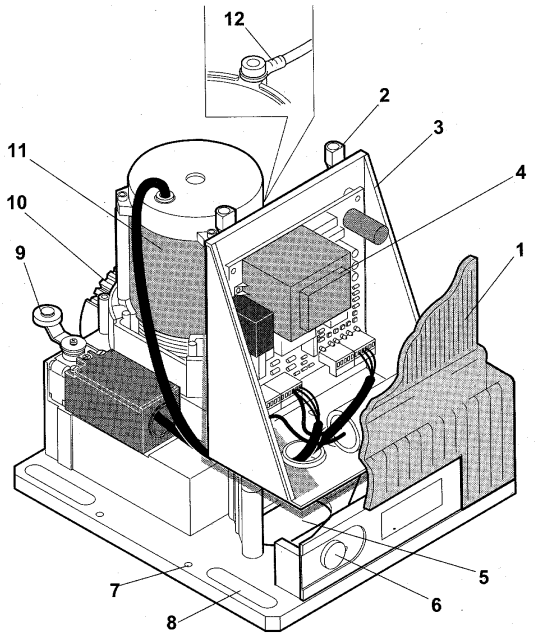


Fig. 1

① Cover
② Supports for cover guides (2)
③ Support for el. control unit
④ 748 MP el. control unit (see fig. 16)
⑤ Opening for cables
⑥ Releasing device with key
⑦ Bores for fastening cover (4)
⑧ Slots for fastening operator
⑨ Mechanical travel stop
⑩ Pinion Z16
⑪ Electric motor
⑫ Earth connection of operator

Table 1: Technical specifications of "748 Operator"

Power supply	230 V~ (+6% -10%) - 50/60 Hz
Absorbed power	350 W
Current drawn	1.6 A
Electric motor	4 poles - 1,400 rpm
Surge capacitor	10 µF / 400V
Reduction ratio	1/25
Pinion	Z 16
Rack	module 4 - pitch 12.566
Max. torque	15 Nm
Max. thrust	40 daN (Z16)
Thermal cutout on winding	140 °C
Duty cycle	see paragraph 1.1
Temperature range	-20 °C +55 °C
Weight of operator	10 kg
Housing protection	IP 54
Max. gate weight	300 kg
Gate speed	12 m / min (Z16)
Max. gate length	10 m (TIME OUT)

Table 2: Technical specifications of "748 MP control unit"

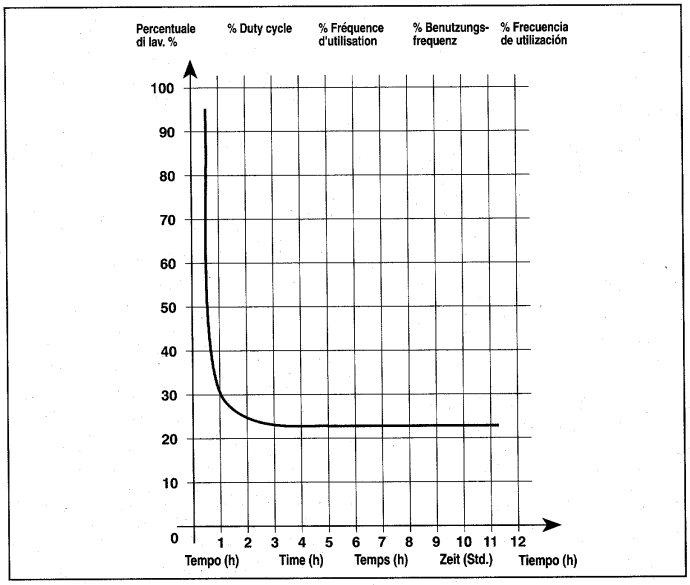
Power supply	230 V~ (+6% -10%) - 50/60 Hz
Absorbed power	10 W
Accessories max. load	500 mA
Motor max. load	350 W
Temperature range	-20 °C +55 °C
Functions selected by microswitch	Operating logics / Closing safety logics / Electronic safety sensor
Operating logics	Automatic / Semi-automatic / Safety / Step-by-step automatic
Max. operating time (TIME OUT)	Adjustable by trimmer (7 - 70 sec)
Pause time	Adjustable by trimmer (8 - 200 sec)
Thrust force	Adjustable by trimmer (0 - 40 daN)
Terminal block inputs	Total opening / Partial opening / Stop / Closing safeties / Limit switch / Electronic safety sensor (optional) / Mains power supply + earth
Terminal block outputs	Flashing lamp / Motor / 30 VDC power supply for accessories
Quick-fit connector	Decoder cards - RP 433 ESL / EDS
Housing protection	IP 54

1.1. MAXIMUM DUTY CYCLE CURVE

The curve makes it possible to determine the maximum operating time (T) as a function of the duty cycle (F), e.g., the 748 operator can work continuously at a duty cycle of 25%.
To ensure smooth running, operation should be kept within the duty area below the curve.
Important: the curve was plotted on the basis of operation at 24 °C. Allow for up to 20% reduction of duty cycle in case of exposure to direct sunlight.
Calculating the duty cycle
The duty cycle is the proportion of the actual operating time (opening + closing) with respect to the total time of the cycle (opening + closing + pause time).
The formula for calculating it is the following:

$$\%F = \frac{Ta + Tc}{Ta + Tc + Tp + Ti} \times 100$$

where: To = opening time
Tc = closing time
Tp = pause time
Ti = duration of interval between a complete cycle and the next one



2. STANDARD INSTALLATION LAYOUT

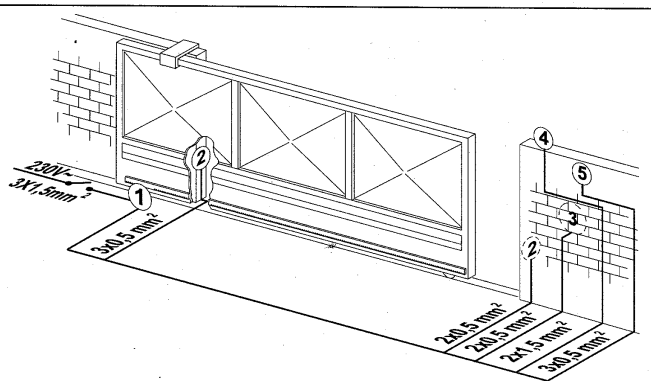


Fig. 2

① 748 operator with built-in 748 electronic control unit (a base plate is required)

② MINIBEAM photocells

③ T10 key-operated pushbutton

④ MINILAMP flashing lamp

⑤ PLUS 433 E receiver

Notes: 1) Use suitable rigid/flexible pipes for laying power cables.

2) Always keep low voltage accessory cables separate from 230 V~ power cables. To avoid interference, use separate sheaths.

3. INSTALLATION OF AUTOMATION SYSTEM

3.1. PRELIMINARY CHECKS

To ensure trouble-free operation, make sure that the gate (whether existing or yet to be installed) has the following specifications:

- Max. gate weight 300 kg.
- Strong and rigid leaf frame.
- Flat leaf face, with no protruding parts and no vertical members.
- Smooth and even movement of the gate over its entire travel.
- No sideways oscillation of the leaf.
- Upper and lower sliding system in perfect conditions. The use of floor tracking with a rounded channel is preferable to reduce friction in the sliding movement.
- Only two slide wheels.
- Mechanical safety stops to avoid risk of derailment. These stops must be firmly fixed to the ground or to the floor track, about 2 cm beyond the travel limit.
- No mechanical locks.

If any welding or brazing is required on the gate, it should be done before installing the automation system.
The condition of the structure directly affects the reliability and safety of the automation system.

3.2. INSTALLING THE OPERATOR

1) Dig out a hole for the base plate as shown in fig. 3. In order to ensure the correct engaging of the pinion and rack, the base plate must be placed in the position shown in fig. 4a (right closing) or 4b (left closing).

N.B. It is advisable to place the base plate on a concrete foundation at about 50 mm from the ground (fig. 5).

2) Lay the flexible pipes for connection cables between operator, accessories, and power supply. The flexible pipes must protrude by approximately 3 cm from the opening on the plate (fig 3).
3) Cement in the plate, ensuring that it is perfectly level.
4) Wait for the concrete to set in the hole.
5) Lay the cables for connection with accessories and power supply (paragraph 2). To facilitate the electrical wiring on the electronic unit, about 20 cm of cable should come out of the opening on the base plate.
6) Fasten the operator to the base plate by means of the screws and washers supplied, as shown in fig. 6. The positioning of the operator is shown in fig. 5. Pass the electrical cables through the relevant opening (fig. 1 - ref. 5) on the base of the operator.
7) Pass the electrical connection cables through the relevant opening on the base of the electronic control unit support (fig. 1 - ref. 3), using the cable clamp supplied.
8) Connect up the cables to the electronic control unit as indicated in paragraph 6.1.

Important: 1) Connect up the earth cable of the system to the position shown in fig. 1 - ref. 12.

2) The operator connections provide for gate closing to the right of the operator (viewed from inside).
If gate closing to the left is required, invert the cable connections on terminals **Op.** and **Cl.** of both **motor** and **limit switch** (fig. 17).

3.3. ASSEMBLING THE RACK

1) Fit the rack by means of the screws TE 8 x 25 and the spacers provided, as shown in figure 7. To avoid welding to the gate, galvanized passing spacers with screws TE 8 x 50 are provided.

N.B. It is advisable to tighten the rack fixing screws at the top of the slot. This allows the rack to be raised if, with time, the gate tends to sink.

2) Release the operator (see paragraph 5).
3) Slide the gate leaf open, by hand.
4) Place the first section of the rack on the pinion, aligning the latter with the first spacer (fig. 8).
5) Fix the rack section to the leaf by means of a clamp (fig. 8).
6) Slide the gate leaf by hand towards its closed position, until it is in line with the third spacer on the rack, and spot weld the spacer in position.
7) Completely weld the three spacers to the gate.

To fasten the other rack sections needed to reach the position of complete closing, proceed as follows:

8) Line up another rack section to the last one fixed to the gate. Use a section of rack of about 150 mm and ensure that the teeth are correctly spaced (fig. 9).
9) Slide the gate by hand towards its closed position until the third spacer of the section to be fastened is aligned with the pinion (fig. 9).

N.B. Ensure that all the rack sections are correctly centered on the pinion teeth. If not, adjust the position of the operator.

10) Weld the three spacers of the section (fig. 9).

Caution: a) do not weld the rack sections to the spacers or to each other;
b) do not use grease or other lubricants on the pinion and rack.

11) To obtain a correct slack between the pinion and rack, lower the operator by 1.5 mm, by means of the support nuts of the base plate (fig. 10).
When this adjustment has been completed, tighten the screws that fasten the operator.

Caution: If the gate is new, check the slack (fig. 11) after a few months.

12) Manually check whether the gate can open completely and the movement of the leaf is smooth and even, over its entire travel.

3.4. POSITIONING THE BENT TRAVEL STOP PLATES

The 748 operator is equipped with a mechanical travel stop with roller and trigger. The movement of the gate is stopped when a bent travel stop plate fixed to the top of the rack

operates the trigger, tripping the microswitch (fig. 12).
To position the two travel stop plates provided, proceed as follows:

1) Switch on the power supply.
2) Move the gate by hand towards its open position, stopping 2 cm from the mechanical travel stop.
3) Slide the travel stop plate along the rack in the opening direction (fig. 13).
   When the LED of the opening travel end limit switch (FCA) in the 748 electronic control unit (fig. 16 - ref. 9) goes out, advance the travel stop plate 30 mm, and fasten it temporarily in position with two spot welds (fig. 13).
4) Move the gate by hand towards its closed position, stopping 2 cm from the mechanical travel stop.
5) Slide the travel stop plate along the rack in the closing direction.
   When the LED of the closing travel end limit switch (FCC) in the 748 electronic control unit (fig. 16 - ref. 8) goes out, advance the travel stop plate 30 mm, and fasten it temporarily in position with two spot welds.

Note: the travel stop plates may be fastened by means of screws, if desired (fig. 12).
The fastening slot makes it possible, if necessary, to adjust the travel stop position.

Important: a) The microswitch must be tripped by the initial bent part of the travel stop plate, as shown in fig. 12.
b) It is advisable to straighten the final bent part of the travel stop plate, as shown in fig. 12, in order to prevent the plate from passing the limit switch.

6) Lock the system (see paragraph 5).

Important: Before giving a signal, ensure that the gate cannot be moved by hand.

7) Run a complete cycle of the gate, to check whether the limit switch is tripped correctly.

Caution: To prevent damage to the operator and/or stoppage of operation, leave about 2 cm from the mechanical travel stops.

8) Adjust the position of the travel stop plates as needed, and weld them to the rack.

4. START-UP

1) Program the 748 MP control electronic unit as needed, following the indications given in paragraph 6.2.
2) Switch on the power supply and check whether the flashing lamp lights up at once to confirm that the operator has been switched on.
   If the operator or the limit switch is not connected, or if there is a fault in the electronic circuit, the system is disabled. The electronic control unit indicates the fault by the quick flashing (0.5 seconds) of the diagnostic LED for about 30 seconds and whenever the system receives a command signal.
3) Check the intermittence (frequency 1 second) of the diagnostic LED (fig. 16 - ref. 14), which confirms that the system is in working order.
4) Check the status-signaling LEDs, with reference to Table 3. To identify the LEDs, consult figure 16.

Table 3: Meaning of status-signaling LEDs

LED	ON	OFF
OPEN input A	Command active	**Command not active**
OPEN input B	Command active	**Command not active**
STOP	**Command not active**	Command active
FTSW (closing safeties)	**Safeties disengaged**	Safeties engaged
FCA (opening limit sw.)	**Opening limit disengaged**	Opening limit engaged
FCC (closing limit sw.)	Closing limit disengaged	**Closing limit engaged**

N.B. The information in bold refers to the status of the LEDs when the gate is closed and idle.

5) After having performed the adjustments indicated in paragraphs 4.1 and 4.2, run a few complete cycles to test the operation of the automation system and of all its accessories.
6) Fit the cover on the operator by means of the screws provided, as shown in figure 14.

4.1. ADJUSTMENT OF MAXIMUM OPERATING TIME (TIME OUT)

The operating time of the automation system is determined by the triggering of the mechanical travel stop.
The 748 operator is also equipped with an electronic safety system which stops the electric motor if the preset operating time is exceeded.
The maximum operating time is determined by the setting of the OP/CL trimmer on the 748 electronic control unit (fig. 16 - ref. 5).
The trimmer is factory set at its maximum value, i.e., an operating time of 70 seconds.
To adjust the trimmer setting, proceed as follows:

- Run the automation system, and determine the opening/closing time.
- Set the maximum operating time on the OP/CL trimmer, increasing the opening/closing time by about 1 minute:
  - to decrease the time, turn the trimmer anticlockwise;
  - to increase the time, turn the trimmer clockwise.
- Release the operator.
- Run the system and check whether the electric motor stops after the preset maximum operating time.
- Lock the operator.

4.2. ADJUSTMENT OF ANTI-CRUSHING SYSTEM

The 748 automation system is equipped with an electronic anti-crushing safety device which stops the opening/closing movement if the gate meets an obstacle during its movement. When the obstacle is removed, the gate resumes its movement until the opening/closing limit is engaged or the preset maximum operating time (TIME OUT) is reached. The threshold of the anti-crushing system can be adjusted by means of the CLUTCH trimmer on the 748 MP electronic control unit (fig. 16 - ref. 7):

- to decrease the torque, turn the trimmer anticlockwise;
- to increase the torque, turn the trimmer clockwise.

This torque limiter must be set in compliance with current standards.
In any case, FAAC advises not to exceed 15 kg of force, measured on the outer edge of the leaf.
Use a linear dynamometer to ensure that the measurement is performed accurately.
When an immediate effect of the activity of the anti-crushing system is required, it is possible to apply an optional electronic obstacle sensor to the operator.
If the sensor detects an obstacle while the gate is opening, the movement is stopped.
If the sensor detects an obstacle while the gate is closing, the movement is reversed.

5. MANUAL OPERATION

Should the need arise to operate the gate manually because of a power failure or malfunction, release it by means of the releasing device (fig. 1 - ref. 6). Proceed as follows:

- open the lid of the lock and insert the relative key in the lock (fig. 15);
- turn the key clockwise and open the cover of the releasing device as shown in figure 15.

To re-lock the system, return the cover of the releasing device to its initial position.
N.B. When the power supply is switched on again, run a complete opening cycle.
Important: before giving a signal, ensure that the gate cannot be moved manually.

6. 748 MP ELECTRONIC CONTROL UNIT

Caution: before performing any operation on the unit (connections, programming or maintenance), always switch off the power supply.

6.1. LAYOUT AND ELECTRICAL WIRING

① **Fuse F1** (motor): 3.15 A / 250 V - 5 x 20

② **Fuse F2** (accessories): 500 mA / 250 V - 5 x 20

③ **Fuse F3** (logic): 250 mA / 250 V - 5 x 20

④ **Connector CN3** for quick connection of DECODER SL/DS, MINIDEC SL/DS, RP 433 ESL/EDS cards (figs 18-19-20-21).

⑤ **OP/CL trimmer** for adjusting maximum operating time (TIME OUT). The maximum operating time can be adjusted from 7 to 70 seconds.

⑥ **PAUSE trimmer** for adjusting pause time (A/S/OP logics). The pause time can be adjusted from 8 to 200 seconds.

⑦ **CLUTCH trimmer**: adjustment of torque, from 0 to 40 daN.

⑧ **LED FCC**: signaling of status of closing limit switch.

⑨ **LED FCA**: signaling of status of opening limit switch.

⑩ **FTSW**: signaling of status of safety devices.

⑪ **LED OPEN "B"**: signaling of partial opening command.

⑫ **LED OPEN "A"**: signaling of total opening command.

⑬ **LED STOP**: signaling of stop command.

⑭ **Diagnostic LED**: see paragraph 4.

⑮ **Low-voltage terminal block CN2**: connection of limit switch and accessories (fig. 17).

Description of terminal block

Com. - Common (-)

Stop (N.C.) - STOP contact: any device (e.g., a pushbutton) that can stop the movement of the gate by opening a contact. When several stop devices are installed, connect the N.C. contacts in series.

Note: if no stop devices are connected, make a jumper on the **Com**. and **N.C.** inputs.

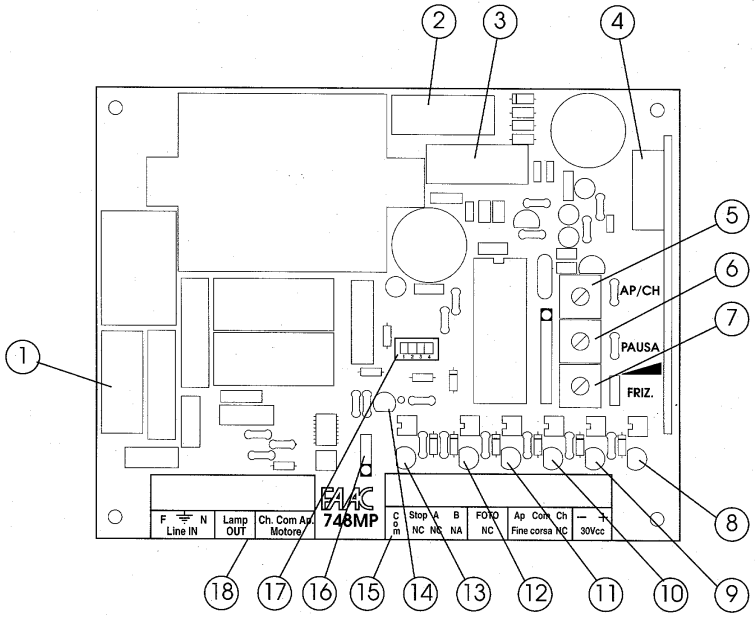
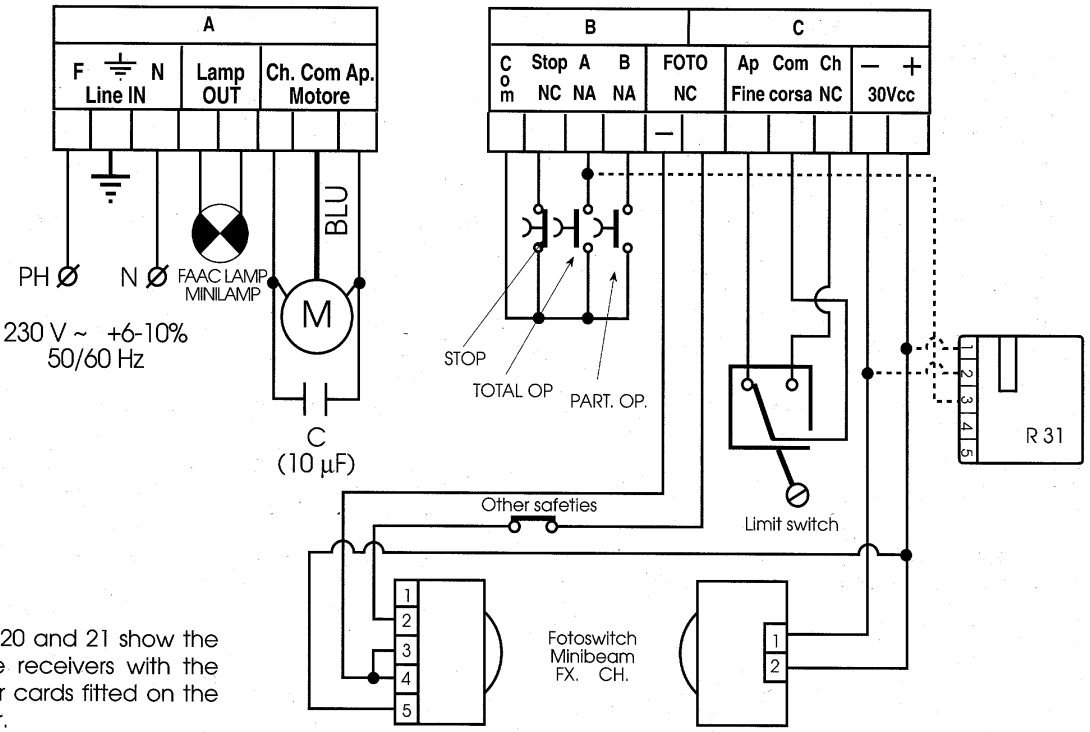


Fig. 16



N.B. Figures 18, 19, 20 and 21 show the connections of the receivers with the respective decoder cards fitted on the quick-fit connector.

Fig. 17

A (N.O.) - Total opening command: any device (pushbutton, photocell, detector, etc.) that can give a signal for the complete opening and/or closing of the gate, by closing a contact.

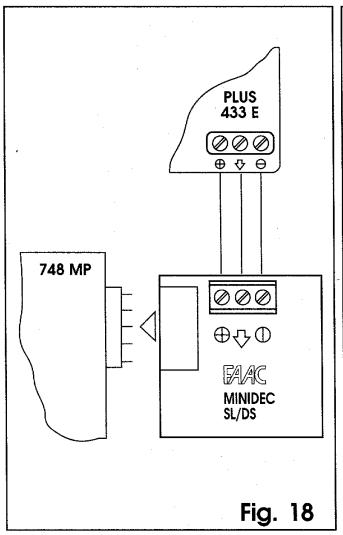


Fig. 18

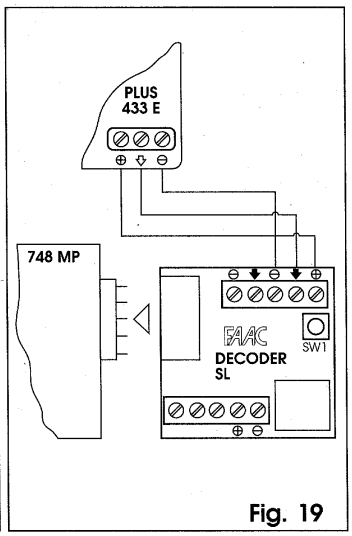


Fig. 19

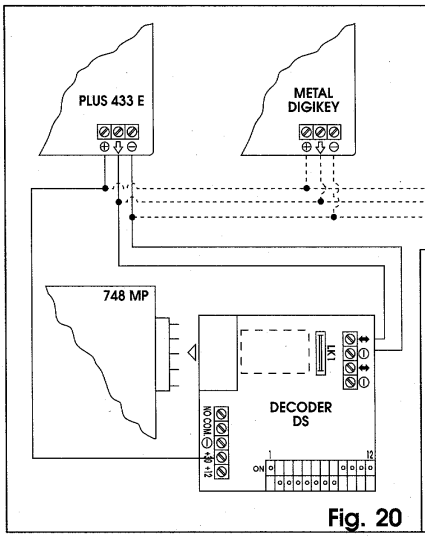


Fig. 20

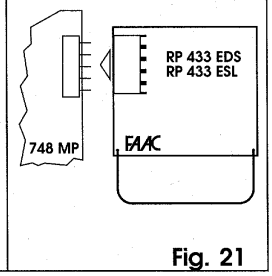


Fig. 21

B (N.O.) - Partial opening command: any device (pushbutton, photocell, detector, etc.,) that can give a signal for the partial opening (1 meter) and/or closing of the gate, by closing a contact.

When several total and/or partial opening devices are installed, connect the N.O. contacts in parallel.

PHOTOC

N.O. - Closing safety contact: any device (photocell, pressure switch, detector, etc.) that ensures safety in the closing cycle by opening a contact. Its effect depends on the programming performed on microswitch 4 (see paragraph 6.2.3).

Note: if no closing safety devices are connected, make a jumper on the two **PHOTOC.** input terminals.

N.C. limit switch

Op. - Opening limit switch contact (N.C.)
Com. - Common (-)
Cl. - Closing limit switch contact (N.C.)

The 748 operator is supplied with its limit switch connected for closing the gate to the right of the operator (viewed from inside). If closing to the left is required, invert the cable connection to terminals **Op.** and **Cl.**

30 VDC

- . - Common

+. - Power supply to accessories (+30 VDC)

Important: the maximum load for the accessories is 500 mA. To calculate the absorption values, consult Table 4, below.

Table 4 - Current drawn by accessories

ACCESSORY	NOMINAL CURRENT DRAWN
R 31	50 mA
PLUS 433 E	25 mA
MINIDEC SL / DS	4.5 mA
DECODER SL / DS	30 mA
RP 433 ESL / EDS	36 mA
DIGICARD	15 mA
METAL DIGIKEY	15 mA
FOTOSWITCH	90 mA
DETECTOR F4 / PS6	50 mA
MINIBEAM	70 mA

⑯ **Quick-fit connector CN7**: connection of cable of electronic obstacle sensor (optional).

⑰ **Programming microswitches**: see paragraph 6.2.

⑱ **Terminal block CN1**(230 V).

Description of terminal block

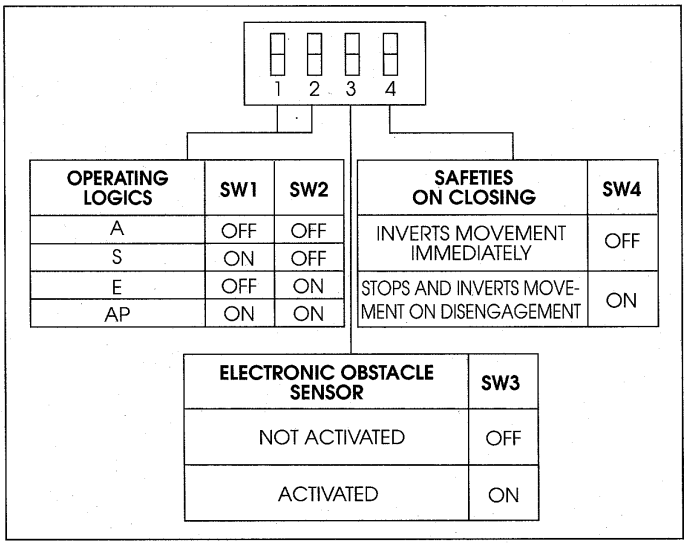
LINE IN
F.: 230 V power supply (phase)
T.: earth connection
N.: 230 V power supply (neutral)

OUT
Lamp: flashing lamp output (230 V)

MOTOR
Op. / Com. / Cl. : connection of electric motor
The 748 operator is supplied with its electric motor connected for closing the gate to the right of the operator (viewed from the inside). If closing to the left is required, invert the cable connection to terminals **Op.** and **Cl.**

6.2. PROGRAMMING THE MICROSWITCHES

The automation system is programmed by means of the microswitches (fig. 16 - ref. 17), as indicated in the diagram below.



OPERATING LOGICS	SW1	SW2
A	OFF	OFF
S	ON	OFF
E	OFF	ON
AP	ON	ON

SAFETIES ON CLOSING	SW4
INVERTS MOVEMENT IMMEDIATELY	OFF
STOPS AND INVERTS MOVEMENT ON DISENGAGEMENT	ON

ELECTRONIC OBSTACLE SENSOR	SW3
NOT ACTIVATED	OFF
ACTIVATED	ON

6.2.1. OPERATING LOGICS

Four operating logics are available:

A: "AUTOMATIC" E: "SEMI-AUTOMATIC"
S: "SAFETY" AP: "STEP-BY-STEP AUTOMATIC"

The operation of these logics is indicated in tables 5/a-b-c-d.

6.2.2. ELECTRONIC OBSTACLE SENSOR

This function must be activated only if the obstacle sensor, available as an accessory, has been installed.

6.2.3. EFFECT OF CLOSING SAFETY DEVICES

This function makes it possible to select the effect of the activity of the safety devices on the closing cycle of the gate:

- OFF: the closing movement is immediately reversed;
- ON: the closing movement is immediately stopped, and reversed when the safety device is disengaged.

7. SPECIAL APPLICATIONS

There are no special applications.

8. MAINTENANCE

Periodically check the structure of the gate, and in particular verify whether the guides are in perfect working conditions.
It is also necessary periodically to ensure that the anti-crushing safety device is correctly set and that the release system for manual operation is in working order (see the relative paragraphs).
The safety devices installed on the system must be checked every 6 months.

9. REPAIRS

For repairs, refer to the authorized FAAC service centers.

Tab. 5/a

LOGIC "A"	PULSES			
GATE STATUS	OPEN-A	OPEN-B	STOP	CLOSING SAFETIES
CLOSED	Opens and recloses after pause time	Opens partially and recloses after pause time	No effect (OPEN inhibited)	
OPEN IN PAUSE	Restores pause time		Stops	Freezes pause up to disenga-gement (*1) (OPEN inhibited)
CLOSING	Reopens immediately			see paragraph 6.2.3
OPENING	No effect. If in part. op., opens completely	No effect		No effect
STOPPED	Closes immediately		No effect (OPEN inhibited)	No effect (OPEN inhibited)

Tab. 5/b

LOGIC "S"	PULSES			
GATE STATUS	OPEN-A	OPEN-B	STOP	CLOSING SAFETIES
CLOSED	Opens and recloses after pause time	Opens partially and recloses after pause time	No effect (OPEN inhibited)	
OPEN IN PAUSE	Recloses immediately		Stops	Recloses immediately
CLOSING	Reopens immediately			see paragraph 6.2.3
OPENING	Recloses immediately			No effect
STOPPED	Closes immediately		No effect (OPEN inhibited)	No effect (OPEN inhibited)

Tab. 5/c

LOGIC "E"	PULSES			
GATE STATUS	OPEN-A	OPEN-B	STOP	CLOSING SAFETIES
CLOSED	Opens	Opens partially	No effect (OPEN inhibited)	
OPEN	Recloses immediately		Stops	No effect (OPEN inhibited)
CLOSING	Reopens immediately			see paragraph 6.2.3
OPENING	Stops			No effect
STOPPED	Closes		No effect (OPEN inhibited)	No effect (OPEN inhibited)

Tab. 5/d

LOGIC "OP"	PULSES			
GATE STATUS	OPEN-A	OPEN-B	STOP	CLOSING SAFETIES
CLOSED	Opens and recloses after pause time	Opens partially and recloses after pause time	No effect (OPEN inhibited)	
OPEN IN PAUSE	Recloses immediately		Stops	Freezes pause up to disenga-gement (*1) (OPEN inhibited)
CLOSING	Reopens immediately			see paragraph 6.2.3
OPENING	Stops			No effect
STOPPED	Closes immediately		No effect (OPEN inhibited)	No effect (OPEN inhibited)

(*1) If the residual pause time is less than 5 seconds on safety disengagement, the gate closes after 5 seconds.
N.B. The effects of other active pulse inputs are indicated in brackets.