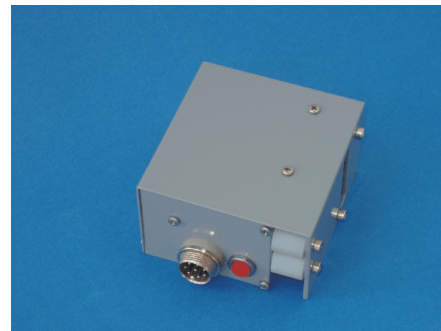
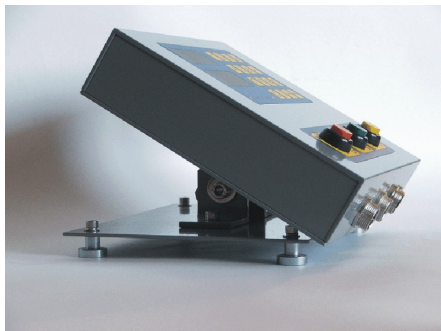


OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE MTI-15B SEPARATOR INSERTER



The separator inserter device should be operated in accordance with the instructions.
We recommend that you carefully read and understand this manual before installation and use.
The manual is an integral part of the machine and must be properly stored.

Zakład Automatyki Przemysłowej i Użytkowej
„MODUS”
ul. Rączna 22
30-741 Krakow

tel. 0048 12 650 64 90
mobile +48 602 120 990
fax 0048 12 650 64 91

www.modus.isn.pl

modus@isn.pl



Kraków 2018

TABLE OF CONTENT

1. The range of applications of the MTI system	3
1.1 Features and characteristics of the ATI-15 operator interface	3
1.2 Features and characteristics of the HTI-15 head	3
1.3 Characteristics of the CTI-15 tape cartridge	3
1.4 Power supply parameters	4
2. General specifications	4
3. Installation method	4
4. Operating and maintenance instructions of the MTI system	5
4.1 Entering the settings	5
4.2 Access to process information during operation	6
4.3 Selection of operating modes	7
4.4 Control	8
4.5 Maintenance – electrical part	8
4.6 Maintenance – mechanical part	8
4.7 Troubleshooting	9
4.8 General rules for regulating the HTI-15 head	10
5. Declaration of Conformity WE	12
6. Warranty Registration Card	13

1. The range of applications of the MTI system

1.1 Features and characteristics of the ATI-15 operator interface

- Maximum package : up-to 1 000 000
 - Range of package meter : 9 999 999
 - Accurate and reliable counting of preset packages
 - Correction of counting when removing sheets to control – demountable sheets button
 - Easy setting of the keyboard
 - Programmable delay in cutting
 - Programmable length of tape
 - Programmable packet size
 - Easy configuration of the device:mode – active or passive START/STOP
 - mode – correction of sheets removed for inspection by pressing the button or setting
 - mode – total count or modulo
 - mode – single or double step cutting
 - mode – fire delay
-
- Automatic insert synchronisation
 - Easy to read packet size setting display
 - Easy to read package meter display
 - Programmatic limit of the tape length up to 50 cm
 - Preserving the settings memory and the counted sheets in the case of a power breakdown
 - Dimensions 190 x 155 x 40

1.2 Features and characteristics of the HTI-15 head

- Operation with machines up to 20000 sheet per hour
- Mounting the head inserting the tape on:
 - Side plane
 - Swivel arm
- Stiffening tape shaping during offset
- Self-cleaning sliding roller
- Also works with waxed paper
- Dimensions 75 x 75 x 45

1.3 Characteristics of the CTI-15 tape cartridge

- Marking tape width -14 mm
- External diameter of tape – 150 mm
- Internal diameter of tape – 50 mm
- Capacity of tape roll – 200 m – 2000 separators 10 cm long
- Brake preventing uncontrolled tape unreel

1.4 Power supply parameters

All components of the MTI-15B separator inserter are supplied with safe voltage.

Only adapters with CE marking with following parameters are allowed:

24V DC / 60W power supply of the MTI-15B

2. General specifications

Conditions of power supply for operator panel and head – required voltage and current sources:

24V DC/60W

The operator panel is connected with other elements of the MTI system with three cables:

- Power cable - 2 contacts (providing voltage from 24V DC power supply)
- Shifting and cutting head cable – 8 contacts (controlled by tape drive and cutter, free entry of a new tape button)
- Pulse counter cable – 3 contacts – cooperation with the passive signal (relay contact or the optocoupler output) and cooperation with the active signal (24V DC pulses)

3. Installation method

<p>The installation of the MTI system should be performed by manufacturer's authorised service.</p>
--

After the installation procedure: of the operator interface, inserter head, tray, power supply and signal from the meter simply connect individual devices using cables.

Cable 1 yellow marker 2 PIN power cable

- | | | |
|----|------------|---------|
| 1. | brown wire | +24V DC |
| 2. | white wire | -24V DC |

Cable 2 green marker – counted signals cable 3 PIN

For PASSIVE signals – connect the relay contact or the optocoupler output to:

Pin 2	Green wire	Optocoupler emitter
Pin 3	Brown wire	Optocoupler collector

For ACTIVE signals – connect 24V DC pulses to:

Pin 1	White wire	GND24V / -24V DC
Pin 2	Green wire	Pulse + 24V DC

Cable 3 red marker – control signals carried by cable 8 PIN:

Pin 1	The controlled weight of +24V power supply	GND24V	Green wire
Pin 2	Motor 24V DC		Yellow wire
Pin 3	Guillotine 24V DC		White wire
Pin 4	Output 24V	Reserve 1	
Pin 5	Output 24V	Reserve 2	
Pin 6	Input of Optocoupler 24V DC	Insert Tape	RED Button
Pin 7	+24 V DC		Gray wire
Pin 8	GND24V from 24V DC Power Supply	Reserve 3	Brown wire

Connection pin to pin

1-1, 2-2, 3-3, 6-6, 8-8 connections required, other pins do not require connecting.

4. Operating and maintenance instructions of the MTI system

Operation of the separator inserter is very easy.

Before using the MTI system, please refer to the user guide, which will allow the optimal operation of the device.

The MTI inserter is intended to split a stack of printed sheets onto packages with a size set by the operator. The process of inserting the tape is concurrent with the printing and laying up the sheets in offset machine.

The MTI system consists of:

- Power supply
- driver
- shifting and cutting
- tape cartridge

Power supply – CE marking is essential : 24V DC / 60W
provides a completely safe operation of the device.

- Operator interface (other names used - driver, operator panel, attendant console) consists of a keyboard, control buttons and two four-position displays.

4.1 Entering the settings



DELAY pictogram is used to determine the time of cutting the sheet. Pressing the button activates input mode of any number of the keyboard - red display of settings blinks. **The new value entered from the keyboard determines after how many sheets from inserting the tape will be cut by the cutter.** The set value should be confirmed with the Enter key.



STRIP LENGTH pictogram is used to determine the length of the tape. Pressing the button activates the input mode of any number of the keyboard - red display of settings blinks. **The new value entered on the keyboard determines the length of the strip set by the operator.** The set value should be confirmed with the Enter key. The set value specifies the time for controlling the motor, expressed in [ms].



PACKAGE SIZE pictogram is used to determine after how many sheets the machine will insert the strips. Pressing the button activates the input mode of any number of the keyboard - red display of settings blinks. **The new value entered on the keyboard determines after how many sheets the strips will be inserted.** The set value should be confirmed with the Enter key.

The set and accepted values are automatically saved to nonvolatile memory, which makes the system remember the last setting. After power on, the display shows the last stored value from the operation. If the new operation is to rely on selecting the same number of sheets as the previous, the operator does not need to make any new settings.

NOTE: The count is remembered after the power is turned off.

- **To delete the count, press the “DEL” button for more than 1 second.**
- **When setting the parameters, the last character entered can be deleted by pressing the “DEL” button.**

4.2 Access to process information during operation:

- button “1” shows the full count from the moment of activation of the START button
- button “2” shows the number of sheets removed for inspection
- button „3” provides the number of packages from the time of activation of the START button

4.3 Selection of operating modes

- button “4” mode – active or passive START/STOP
 1. if the value of the parameter is 0, it means activation or deactivation of the counting process after pressing the START/STOP button
 2. if the value of the parameter is 1, it means (in addition to activation or deactivation of the counting process) also activation of the discharge cycle and cutting off the tape each after pressing the START/STOP button

- button “5” mode – correction of sheets removed for inspection by pressing the button or setting
 1. if the value of the parameter is 0, it means that sheets can be removed for inspection only by a single or multiple use of the **green button**
 2. if the value of the parameter is 1, it means an additional possibility to subtract any number from the value of modulo < modulo. It can be achieved by pressing the **green button** for longer than 1 second. The red display will show a flashing 0. Enter the number $X < \text{modulo}$ and confirm the correction by pressing the Enter button:
 $\text{modulo} = \text{modulo} - X$

- button “6” mode – total count or modulo
 - if the value of the parameter is 0, the red display will show batch settings up to 9999 and the green display will show the value of modulo
 - if the value of the parameter is 1, the total count will be displayed. The lower (green) display shows numbers in the range 0-999, and the upper one (red) displays full thousands of the total count

- button “7” mode – single or double step cutting
 - if the value of the parameter is 0, single step cutting is set
 - if the value of the parameter is 1, double step cutting is set

- button “8” mode – delayed start of counting Fire Delay
 - the value of the parameter is in the range 0-255, a delayed start of counting sheets is introduced by activating the START button (red LED light of the red button on)

Each time you press the button switching the red LED light on, the counting begins.

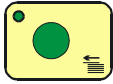
Control buttons allow you to:

- block the counting of sheets – red LED off in the red button area
- unblock counting of sheets - red LED off in the red button area
- correction of number of sheets in the package if the package was removed from the control sheet
- manual insert of the strip at any time

4.4 Controls

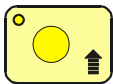


The button locks the counting of sheets - red LED associated with that button is not lit. Pressing the button again unblocks the counting of sheets and enables automatic insert of strips – the red LED is lit. Each press of the button, which lights the red LED, causes inserting the strip – counting starts.



After collecting the sheet from the stack, press the button, which will correct the meter of sheets by 1 so that the amount of sheets separated by strips in packages agreed with the set value. Collection of more than one sheet must be corrected by repeatedly pressing the button corresponding to the amount of collected sheets. For 1 second, after starting the button, on the green display a symbol – collection of sheets, and on the red display – the amount of corrected sheets for particular package are lit. After inserting the strip, which starts new package, this number is automatically reset to zero.

Button “5” allows you to change the function of the **green button** described in chapter 4.3



Pressing the button enables inserting the strip with set length at any time. It is used for test insert of the strip and marking the stack in accordance with emergency needs of the operator.

- Counting the sheets requires supplying the signal into the MTI system, i.e. from the machine meter. This implies the need to connect two wires of the operator interface to the terminals on the machine. For safety, they are electrically separated from the machine.
- The dosing and cutting head provides inserting the strip with the right speed, with the right length at the right moment. The coherent MTI system is responsible for precise, reliable and synchronised work with machine operation.

4.5 Maintenance - electrical part

ATI-15 driver does not require maintenance. During operation you should only keep the driver clean, protect it from mechanical damage – above all it corresponds to cables – and prevent it from being flooded with water or other liquids. Do not remove the seals on the controller. In case of problems, please notify the authorised service.

4.6 Maintenance – mechanical parts

The inserting and cutting head HTI-15 requires periodic maintenance.

This includes:

- Cleaning the head from powder and grease after removing the top and front cover
- Pressure regulation
- Periodic inspection and possible replacement of rubber parts
- Periodic checking if the cutting edges of knives are not jagged and possible sharpening or replacing of blades.
- Maintaining a clean head

Note: Movable head parts should not be lubricated.

4.7 Troubleshooting

Fault	Cause	Removal
System off	<ul style="list-style-type: none"> - No power - Faulty power cable - Blown fuse in the internal controller (1A) 	<ul style="list-style-type: none"> - Check the voltage at the terminals of the cable with a yellow marker <p>1-2 should be 24V DC 1: +24V 2: -24V (GND)</p>
No tape movement	<ul style="list-style-type: none"> - Tape locked in the head - Roll of paper locked - Empty paper roll - Cracked rubber element of drive roller - No pressure - Damaged cable - Faulty engine 	<ul style="list-style-type: none"> - Check the tape blockage - Check the resistance of the tape roll - Attach a new roll of paper - Replace the rubber element - Adjust the pressure - Send the head, driver and the cable connecting them to the service
Irregular tape movement	<ul style="list-style-type: none"> - The presence of grease on the drive roller - Low pressure - O-rings worn 	<ul style="list-style-type: none"> - Clean the drive roller - Adjust the pressure - Replace O-rings 10x2, 5
No cutting – the knife moves	<ul style="list-style-type: none"> - Wrong knife setting - Too low pressure of the knife edge - Bad electromagnet setting 	<ul style="list-style-type: none"> - Adjust the knife - Adjust the pressure - Set the electromagnet
No cutting – the knife does not move	<ul style="list-style-type: none"> - No voltage on electromagnets - Mechanical lock of the knife 	<ul style="list-style-type: none"> - Check the electromagnet cable - Remove the lock

In other cases, please contact the Manufacturer's Authorised Service Provider.
mobile +48 602 120 990

4.8 General rules for regulating the HTI-15 head

1. Proper operation of the HTI-15 head requires the appropriate regulatory settings.
2. Proper cutting requires proper configuration of the cutting knife (moving) relative to the stationary knife. Planes of blades should adhere to each other equally, in the lowest position of the movable knife. We check this visually after manually pressing it down to the bottom of the cutting knife. *Fig. 1a, 1b, 1c*
3. The lack of parallelism of knives we correct by:
 - Loosening the two allen screws M3 in the head that hold the bar, on which the stationary knife is mounted *Fig.4 - A*
 - Making the knives approach each other so as to fit flush to each other *Fig.1c*
 - Blocking such fixed position by tightening - gradually alternating – earlier loosening allen screws M3 that mount the lower knife bar
4. If after the regulations described in Section 3, planes of blades are at an angle, fork position should be adjusted according to the following procedure:
 - Unscrew the 4 hex screws M3 securing the sidewall. Take off the sidewall. In this way you access to the screws fastening the forks to the body of the head.
 - Loosen the screws fastening the forks. *Fig.2a*
 - Correct the position of the fork, so as to obtain a parallel set of knives *Fig.2c*
 - Block such set position of forks by touching the screws fastening it
5. Check the adhesion and parallelism of knives by moving the movable knife from top to bottom. If necessary, repeat steps 3 or 4
6. Install and screw the sidewall again.
7. Proper cutting also **requires setting the proper angle of opening** between the knives in the rest position. *Fig.3* This is accomplished manually by pressing electromagnet core to the end, (*C*) which moves the top knife down similar to when cutting. Due to the normal clearance between the pin carrying the movement of the electromagnet core on the movement of the upper blade, in the position of drawn core the upper blade should be lifted manually.(*D*) This position corresponds to the end of the electromagnet forces when operating. In this position check the degree of overlap between the knives. Optimal overlap of the upper knife end with the edge of the lower knife blade is between 0.2 to 0.7. mm. Optional regulation shall be done after previous loosening of the nut (*E*) of the cutting blade. After setting tighten the nut and check manually the angle after pressing the electromagnet core and reducing the normal looseness by lifting the movable knife to the top manually. (*D*)
8. Proper operation of the head requires also the **right setting of the electromagnet**. *Fig.4* The fixed position of the electromagnet can not block the reciprocal movement of the

electromagnet core and knife. Make adjustments by loosening the two screws securing the electromagnet, (B) placed in the head, and after adjusting the position of electromagnet by tightening them again.

9. Verifying the correct settings of the head should be performed outside the machine holding it in hands or placing in convenient place. Connect the head to the controller, introduce for example 2 m tape and press the red button in the head. The driver moves the bar and after 2 sec. it shuts off. Repeat this step several times, e.g. after a faultless operation during the test head can be installed in the machine.

The procedure described exhausts all regulatory activities and is always effective unless there are faults of the HTI-15 head or ATI -15 driver.

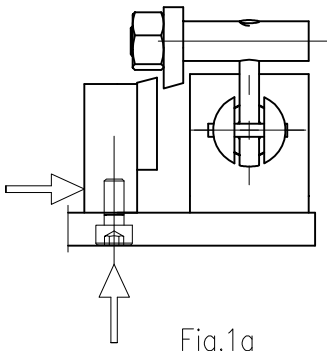
The possible faults of the head or driver are removed by the manufacturer's service.
Telephone +48 602 120 990 and 0048 12 650 64 90 fax 0048 12 650 64 91

We provide free telephone consultations concerning proper operation and correct settings for separator inserter MTI-15B.

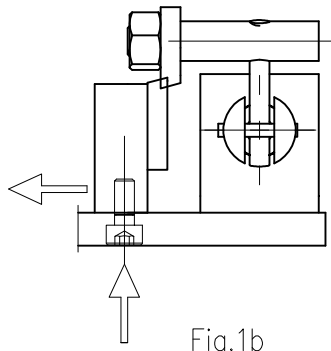
We wish that the operation of your device is simple and effective.

Adjusting of the head

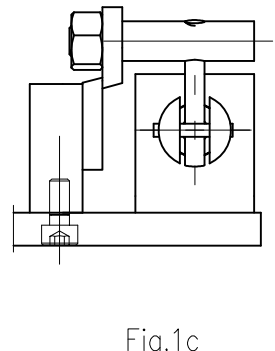
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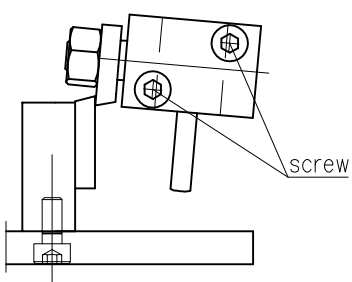
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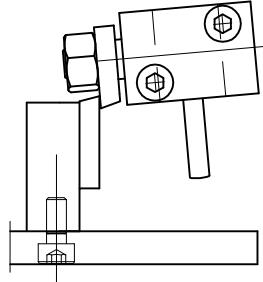
Ok



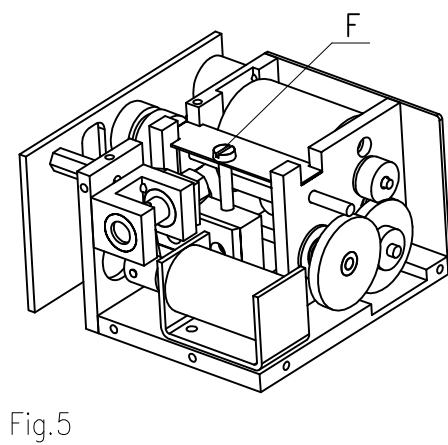
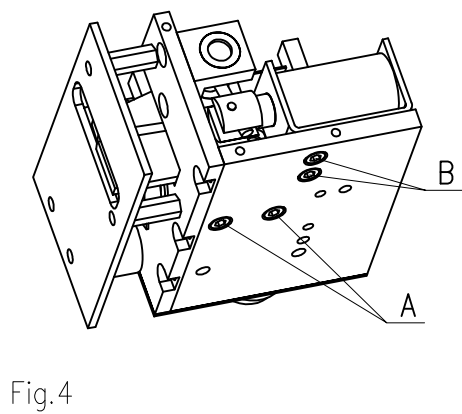
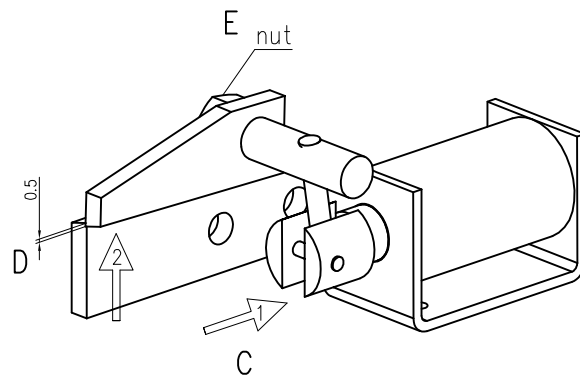
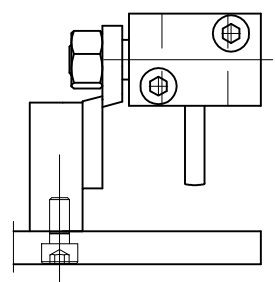
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Ok





Zakład Automatyki Przemysłowej i Użytkowej „MODUS”
ul. Rączna 22, 30-741 Krakow, PL

tel. 0048 12 650 64 90; fax 0048 12 650 64 91; mobile +48 602 120 990
modus@isn.pl www.modus.isn.pl

Declaration of Conformity WE

I declare with full responsibility the compatibility of the device:

Tab inserter
model: MTI-15B
type: ATI-15B

with following laws and harmonised standards:

2006/42/WE Directive (on machines)

2004/108/WE Directive (EMC directive)

- 2006/95/WE Directive (LVD directive)
- PN-EN 60204-1:2010 Safety of machinery - Electrical equipment of machines. - Part 1: General requirements.
- PN-EN ISO 12100:2011 Safety of machinery - Basic concepts, general principles for design - Risk assessment and risk reduction..
- PN-EN ISO 13849-1:2008 Safety of machinery - parts of control systems related to security - Part 1: General principles for design

Zakład Automatyki Przemysłowej i Użytkowej „MODUS”, ul. Rączna 22, 30-741 Krakow



Person responsible: Jan Skóra

Position: owner

Krakow 23.05.2016

WARRANTY REGISTRATION CARD

Name of goods	Separator inserter MTI-15B	
Type	ATI-15B controller	HTI-15 head
Factory number		
Year of production	2018	2018
Date of sales Signature and stamp of the seller		
Clients signature		

The conditions of warranty of MTI systems

1. The warranty of Zakład Automatyki Przemysłowej i Użytkowej „MODUS” concerns the MTI-15B separator inserters.
2. ZAPIU „MODUS” ensures smooth operation of the device to which this warranty registration card has been issued, under the condition of proper use of the device in accordance with the technical and operating conditions described in the operating and maintenance instruction.
3. ZAPIU „MODUS” guarantees for a period of 24 months from the date of sale of the device. Implementation of the warranty will be held after the presentation of a valid warranty card and confirmation of compliance in the warranty card with the facts.
4. Defects discovered during the warranty period will be repaired free of charge, after the delivery of the device to Manufacturer’s Authorised Service – as soon as possible not exceeding 14 days from receiving of device to the service.
5. The warranty is extended for the time of duration of warranty faults.
6. The warranty covers only damages and defects resulting from causes inherent in the device sold. Damage caused by external factors, such as mechanical damage, damage caused by improper use of consumables, or improper operation is not covered under warranty (failure to comply with technical and operating conditions described in the Manual).
7. The warranty does not cover activities belonging to the normal operational service such as cleaning and maintenance, replacement of rubber parts, replacement and adjustment of the knife, adjusting the pressure rollers, checking the operation.
8. The warranty does not cover claims relating to the technical parameters of equipment, as long as they comply with the ones specified in the manufacturer's User Manual.
9. The purchaser loses all rights under the guarantee, in case of making unauthorised repairs or structural alteration or removal of warranty seals. The warranty may not apply when the equipment is used for purposes other than intended.
10. The purchaser has the right to change the equipment to a new one or refund the purchase price if within the warranty period the Manufacturer’s Authorised Service conducts four repairs and equipment still shows defects that prevent its use as intended.
11. The selection of method of complaint belongs to the guarantor.
12. Specific rights of the Purchaser and guarantor’s obligations resulting from this warranty are set by the Civil Code.

WARRANTY REPAIR NOTES

Item	Date of adoption	Date of repair	Fault and comments of the service	The guarantee was extended to	Signature and stamp of the service
1.					
2.					
3.					
4.					

ADDRESSES OF SERVICES:

CENTRAL SERVICE: ZAPiU „MODUS”
ul. Rączna 22
30-741 Kraków

mobile +48 602 120 990

www.modus.isn.pl

modus@isn.pl

REGIONAL SERVICES INFORMATION IN CENTRAL SERVICE