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Knowledge | Technology | Process



# HYDRAULIC & ELECTROHYDRAULIC TRAINING KIT

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## HYDRAULIC & ELECTROHYDRAULIC TRAINING KIT



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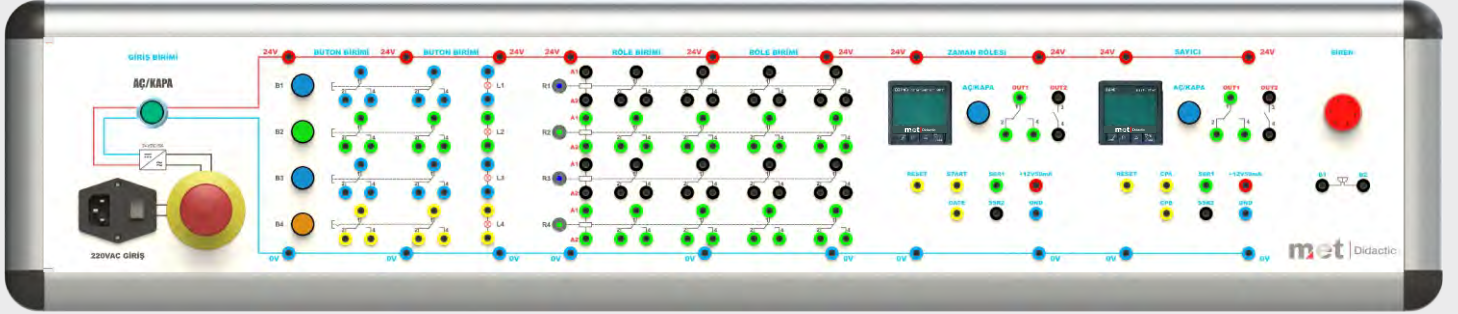


### TROLLEY OF THE TRAINING KIT

1220mm (L), 700mm (W), 1850mm (H)

- The dimension of the main column is 90x90mm  
Modular anodized aluminium
- Impact-resistant laminate table  
Lockable swivel caster
- Portable and stationary use  
Can be used as one-sided or double-sided
- Lockable and relocatable metallic drawer  
All equipments including the trolley and  
control panel have CE certificate.





## CONTROL AND MONITORING PANEL

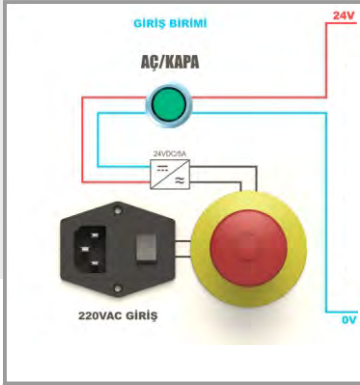
- 1- Input unit
- 2- Button and lamp unit
- 3- Relay unit
- 4- Digital timing relay unit
- 5- Digital counter unit
- 6- Buzzer with light unit
- 7- PLC unit
- 8- Proportional control unit
- 9- HMI unit
- 10- DC motor, stepper motor, encoder unit

The panel consists of 10 different units. The set can include all the listed units or the units can be added or removed according to user's needs.

The control elements on the units are assembled on an insulated 3mm-thick metal panel.

The control panel can be disassembled within seconds from the trolley with the help of its assembly.

3 sides of the panel are surrounded by an insulated material to avoid dust formation. 4mm dimensioned binding posts are used on the panel. Thus, all the electrical bondings can be made easily with the help of 4mm dimensioned banana cables. Insulated sockets or cables can be used due to user's choices.



### 1. INPUT UNIT

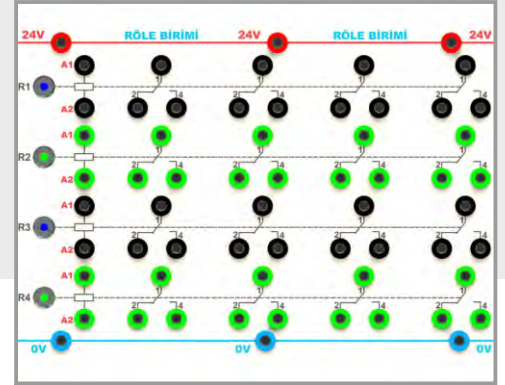
230 VAC input and 24 VDC output, short circuit protected power supply. The input unit consists of an on / o switch, emergency stop button and signal lamp.



### 2. BUTTON AND LAMP UNIT

It consists 4 buttons (3 of the buttons are variable and 1 of them is permanent). On each button, there are 2 contacts that can be used as normally open and normally closed.

Besides, all the buttons are designed to be used as lamps. Sockets, which are located on the right side of the button unit, are used for lamp's inputs and outputs.

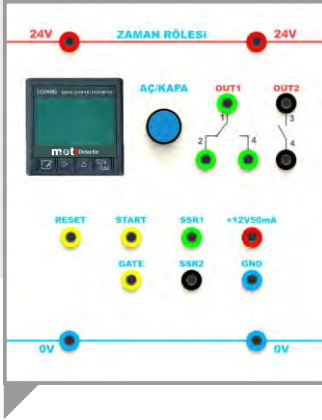


### 3 RELAY UNIT

It consists from 4 relays.

On each relay, there are 3 contacts that can be used as normally open and normally closed.

it can be seen if the relay coil is powered or not with the help of 8mm diametered stainless metal bodied lamps.

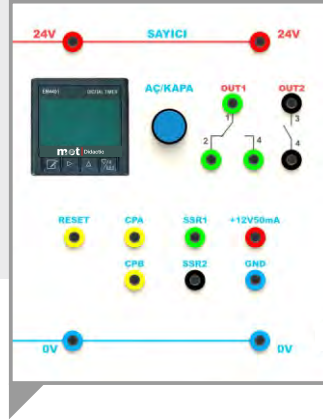


#### 4. DIGITAL TIMING RELAY UNIT

48x48 dimensioned digital timer has features such as; 2x4 digit indicator, 9 step time interval, PNP or NPN typed sensor input, working with or without memory, display count up/down.

The time setting and programming can be made easily with the help of buttons on the screen. The time unit and the reset value can be seen on the lower display.

Front panel has IP60 protection class while back panel has IP20.



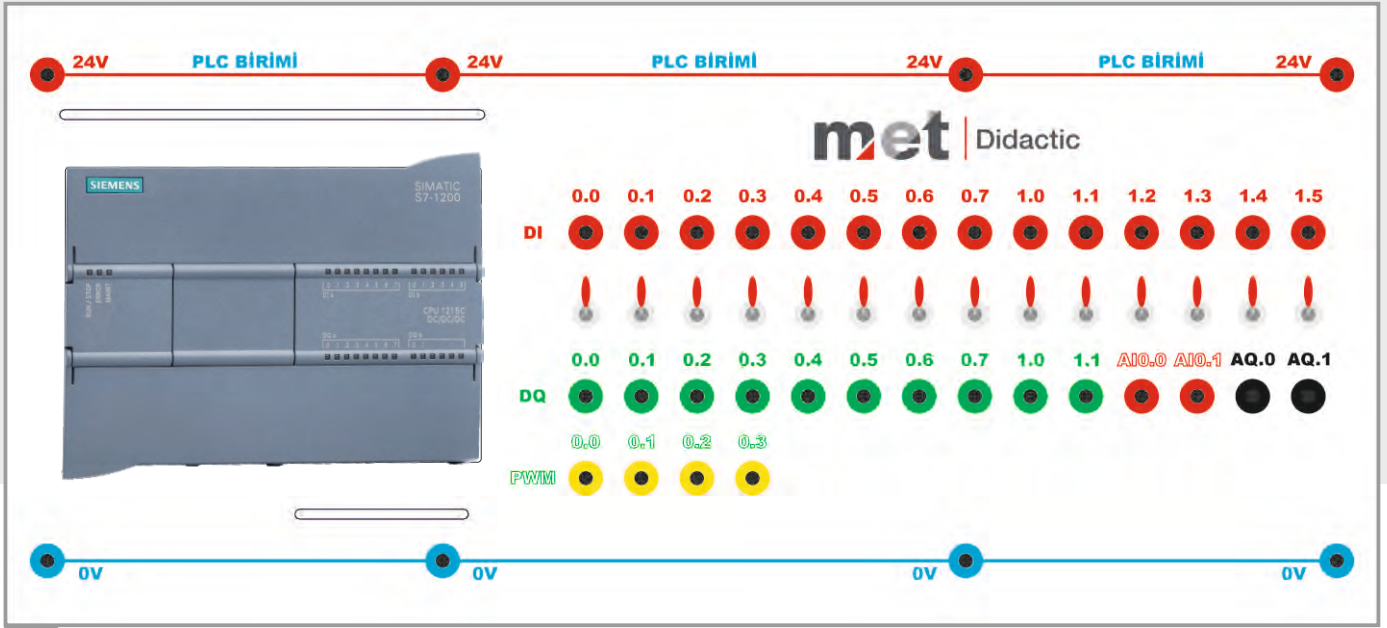
#### 5. DIGITAL COUNTER UNIT

The unit is digital displayed, 48x48 dimensioned and 2x4 digit. there are 2 inputs for counting (max 9999hz, 5V-30V pulse). Counting frequency can be chosen in between 25-9999hz. NO-NC relays for output. Front panel has IP65 protecting class while back panel has IP20. Setting and programming can be made easily with the buttons located on the front panel. Sensor input type can be PNP-NPN or encoders. Counting can be made UP/DOWN.



#### 6. BUZZER UNIT

The unit is 24V DC asher lighted-up buzzer.



## 7. PLC UNIT

Siemens S7-1200, (CPU 1215C) PLC. 14 input simulators, 14 toggle momentaries, fast output/normal output selection possibility, input signals can be given with the help of toggle switches without the need for another device. Whether the signal is given or not is controlled by the signal lamps on the PLC. The PLC unit normally has 2 analog inputs and 2 analog outputs. All digital outputs are protected by relay. PWM application opportunity is also provided with fast outputs.

## 8. PROPORTIONAL CONTROL UNIT



### LED

- 24V voltaj kaynağı, yeşil
- 15V voltaj kaynağı, yeşil Bobin çıkışını etkinleştirme, sarı
- Bobin aşırı yük çıkışı, kırmızı
- LVDT hatası, kırmızı
- Bobin çalıştırma, sarı

### POTANSİYOMETRELER

- Ölü band önleme, akış P'den B'ye
- Ölü band önleme, akış P'den A'ya
- Kazanç, akış P'den B'ye
- Kazanç, akış P'den A'ya

### LED

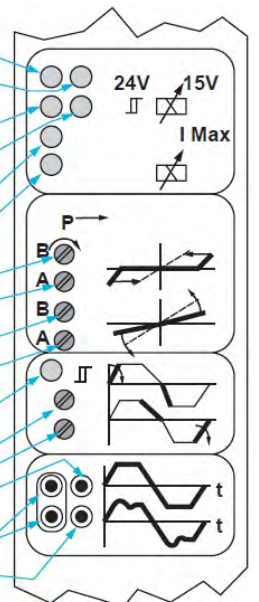
- Rampa etkin sarı

### POTANSİYOMETRELER

- Rampa hızlanma
- Rampa yavaşlama

### İZLEME NOKTALARI

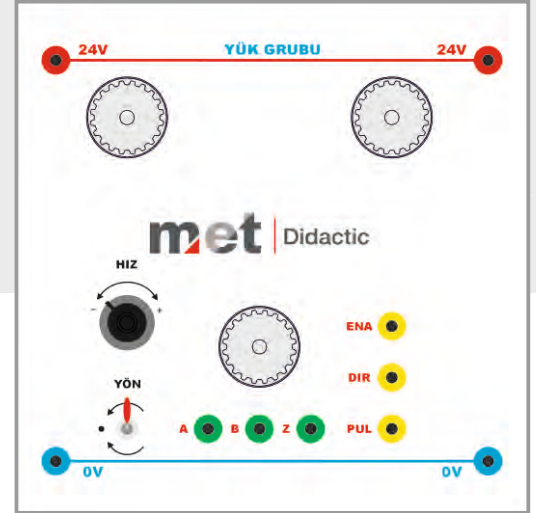
- MP1 Kumanda sinyalinin durumu
- Ortak zemin 0V
- Sürgü konumu MP2





## 9. HMI UNIT

65536 color TFT DISPLAY touch panel. 7" size, with profinet interface, both programming from the computer and communication with PLC from the same interface. 8 programming menu keys on the panel.



## 10. DC MOTOR, STEPPER MOTOR, ENCODER UNIT

An encoder has also been added to this unit, which is designed for stepper motor and DC motor applications. With the help of timing belts and gears, the movement of the motors is transmitted to the encoder. Signal is sent to the motors and the rotation rate of the motors can be controlled as a result of the signal sent.



### Aluminum Mounting Panel



- 1060X780mm sized
- **Modular, demountable and portable**
- **Can be used as one-sided or double-sided**
- **Stainless, impact-resistant anodized aluminum**
- **T slots for mounting the hydraulic equipments**
- **Solid-bodied to avoid vibration**
- To avoid any kind of job accident, the edges are surrounded by special profile
- Special caps are used to hide the connection bolt and also increase the flexibility
- **Can be used separately or mounted on the trolley**

Made in Türkiye

MDL-ADO 001-ALP

### Hydraulic Hose Set



- Variety of 700mm or 1000mm length
- **Quick couplings for connecting easily**
- **Flexible**
- **Bendable**
- **200 bar working pressure, 800 bar burst pressure**
- **System 2018 (no oil-leaking during demounting)**

Made in Türkiye

MDL-ADO 000 1QC

### Powerpacks



- Aluminum, injection body
- **Tank volume is about 10 lt**
- **It is mounted on the side of trolley Demountable**
- **AC 220V, 0,75 kW electrical motor (approximately)**
- **Fixed displacement gear pump Designed for mobile hydraulic system**
- **Filling and breathing cup Drain plug**
- **Safety valve**
- **Distribution block**
- **Suitable for check valve and directional valve**
- **On/o switch**

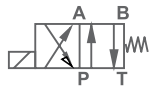
Made in South Korea

MDL-ADO 008-3



4/2 Directional Control Valve

4/2 directional control valve, single solenoid, 24VDC, 4mm socket, with led



Made in Germany

MDL-ADO 038



4/2 Directional Control Valve

4/2 directional control valve, double solenoid, 24VDC, 4mm socket, with led



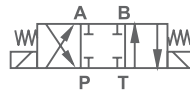
Made in Germany

MDL-ADO 039



4/3 Directional Control Valve

4/3 directional control valve, closed mid-position, double solenoid, 24VDC, 4mm socket, with led



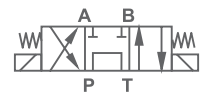
Made in Germany

MDL-ADO 040



4/3 Directional Control Valve

4/3 directional control valve, P-T mid-position, double solenoid, 24VDC, 4mm socket with led



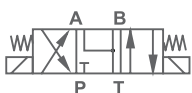
Made in Germany

MDL-ADO 041



4/3 Directional Control Valve

4/3 directional control valve, A-B-T type mid-position, double solenoid, 24VDC, 4mm socket, with led



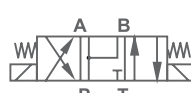
Made in Germany

MDL-ADO 042



4/3 Directional Control Valve

4/3 directional control valve, P-A-B type mid-position, double solenoid, 24VDC, 4mm socket, with led



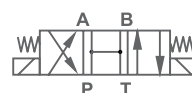
Made in Germany

MDL-ADO 043



4/3 Directional Control Valve

4/3 directional control valve, double solenoid, H type mid-position, 24VDC, 4mm socket, with led



Made in Germany

MDL-ADO 044



4/2 Directional Control Valve

Directional control valve, hand-operated, spring return type



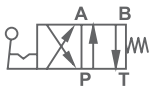
Made in Germany

MDL-ADO 045



4/2 Directional Control Valve

4/2 directional control valve hand lever, with detent



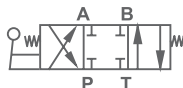
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MDL-ADO 027



4/3 Directional Control Valve

4/3 directional control valve hand lever, closed type mid-position



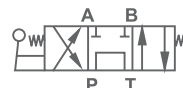
Made in Germany

MDL-ADO 027



4/3 Directional Control Valve

4/3 directional control valve hand lever, P-T type mid-position



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4/3 Directional Control Valve

4/3 directional control valve hand lever, A-B-T type mid-position



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4/3 Directional Control Valve

4/3 directional control valve hand lever, P-A-B type mid-position



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4/3 Directional Control Valve

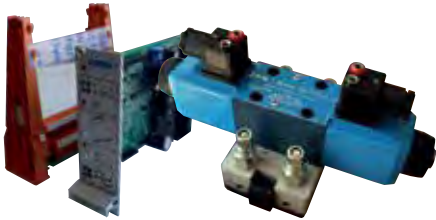
4/3 directional control valve hand lever, H type mid-position



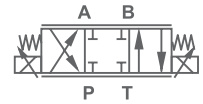
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MDL-ADO 027

4/3 Proportional Valve



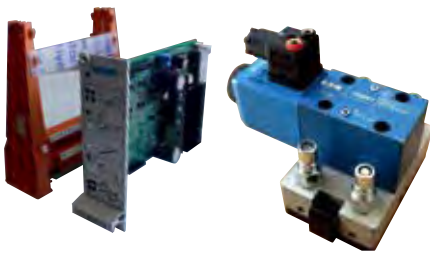
4/3 proportional directional control valve closed mid-position, the valve is standard ISO 4401-03 sized.  
 NEMA4 protection class.  
 Analogue input signal 0-10V or 4-20 mA.  
 Can be used for direction control or very precise flow control.



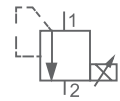
Made in England

MDL-ADO 097

Proportional Pressure Control Valve



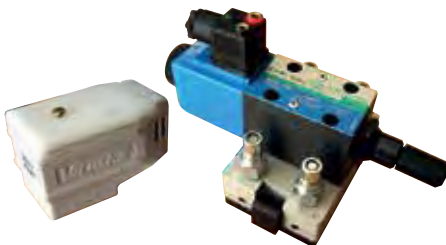
The valve is standard ISO 4401-03 sized.  
 NEMA4 protection class.  
 Analogue input signal 0-10V or 4-20 mA.  
 Can be used to adjust pressure value with electrical signals.



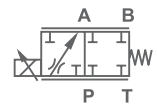
Made in England

MDL-ADO 097

Proportional Flow Control Valve



The valve is standard ISO 4401-03 sized.  
 NEMA4 protection class.  
 Analogue input signal 0-10V or 4-20 mA.  
 Can be used to adjust flow value with electrical signals.



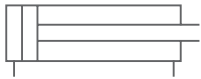
Made in England

MDL-ADO 097



Hydraulic Cylinder

20x100mm dimensioned, light series aluminium, with sensor brackets, screw coupling system



Made in Japan

MDL-ADO 027



Hydraulic Motor

Gear type, high torque, easy mounting.



Made in Germany

MDL-ADO 027



Hydraulic Rotating Cylinder

Gear type, 90-180 rotatable, high torque, 16mm cylinder diameter, 16mm shaft diameter. The rotating cylinder has slotting.



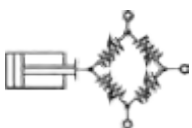
Made in Türkiye

MDL-ADO 027



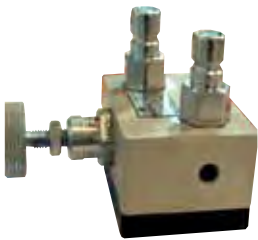
Hydraulic Cylinder And Loadcell Unit

It is used to measure the force that hydraulic cylinder applies. The user will observe the force changes when the pressure within the cylinder changes with the help of proportional or hand lever value.



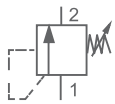
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MDL-ADO 027



Pressure Safety Valve

Cartridge type, pressure value is adjustable. When the system reaches the settled pressure value, the fluid's transfer to the tank starts.



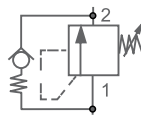
Made in Germany

MDL-ADO 054



Pressure Sequence Valve

Cartridge type, pressure valve is adjustable. The valve is used to work 2 receivers at different times.



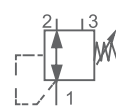
Made in Germany

MDL-ADO 057



Pressure Reducing Valve

The pressure valve is adjustable, cartridge type, 3 lined.



Made in Germany

MDL-ADO 058



2 Way Flow Control Valve

Flow control valve is adjustable. 2 lines.



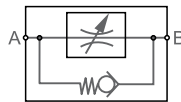
Made in Germany

MDL-ADO 069



One Way Flow Control Valve

Flow control valve is adjustable. 2 lines.



Made in Germany

MDL-ADO 068



One Way Precision Flow Control Valve

Flow control valve is adjustable. 2 lines and load unacted.



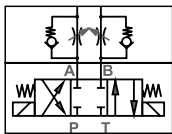
Made in Germany

MDL-ADO 071



Modular Flow Control Valve Group

Cartridge type, flow value is adjustable. When the system reaches the settled pressure value, the fluid's transfer to the tank starts.



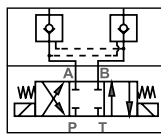
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MDL-ADO 154



Modular Blocking Valve Group

Cartridge type, pressure valve is adjustable. The valve is used to work 2 receivers at different times.



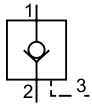
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MDL-ADO 155



Check Valve With Pilot

Cartridge type blocking valve



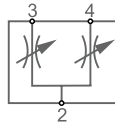
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MDL-ADO 061



Flow Divider Valve

Cartridge type



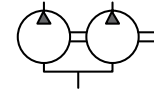
Made in Germany

MDL-ADO 064



Flow Divider Valve

Gear type



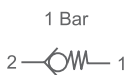
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MDL-ADO 065



Check Valve

One way valve that cracking pressure 1 bar



Made in Germany

MDL-ADO 073



Minimess Manometer

When you want to find the pressure value you can use it.



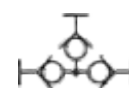
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MDL-ADO 181



T Connection

It is used to increase the connection amount. With or without socket.



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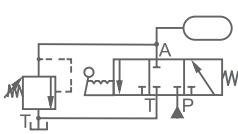
MDL-ADO 182





Accumulator Group

0,75 lt volume bladder type Accumulator block. Safety valve (fixed pressure valve for safety). Globe-type on/o valve. Manometer with glycerin.



Made In Germany

MDL-ADO 066



Pressure Filter

Variety of 10 or 20 micron. Suitable body for high operation pressure. Visual or electrical type clogging indicator. Easy mounting or demounting.



Made In Germany

MDL-ADO 153



Pressure Gauge (Manometer)

0-160 bar, Ø63mm, with glycerin. Line distributor. Can be used for P (pressure line) or T (tank line)



Made In Türkiye

MDL-ADO 074



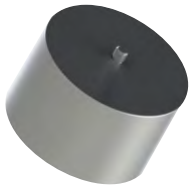
Pressure Bleeding Equipment

The pressure that stayed in coupling does not let the coupling connection. Bleeder plug should be assembled on male coupling and the air will be bleeding manually.



Made In Türkiye

MDL-ADO 156



Weight

Almost 10 kg iron weight. Stainless. It is used by connecting to the cylinder.



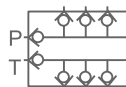
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MDL-ADO 157



Distributor

It can be used in P-T lines. 4 connections for P, 4 connections for T.



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MDL-ADO 107



Organizer

It is designed to organize equipments. 600x400x330 mm. Made of resistant plastic.



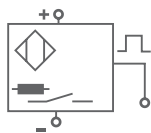
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MDL-ADO 180



Inductive Sensor

Can detect only metal material. Wide detection range. Can be used as normally open or normally closed. 24VDC. Possibility of connection with the help of banana cables.



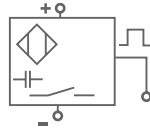
Made in France

MDL-ADO 161



Capacitive Sensor

Can detect all kind of material. Wide detection range. Can be used as normally open or normally closed. 24VDC. Possibility of connection with the help of banana cables.



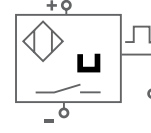
Made in France

MDL-ADO 162



Magnetic Sensor

Can detect only magnetic material. Wide detection range. Can be used as normally open or normally closed. 24VDC. Possibility of connection with the help of banana cables.



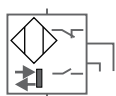
Made in France

MDL-ADO 177



Optic Sensor  
(With Material Reected)

Can detect all kind of material. Wide detection range. Can be used as normally open or normally closed. 24VDC. Possibility of connection with the help of banana cables.



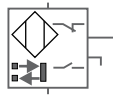
Made in France

MDL-ADO 163



Optic Sensor  
(With Material Reecter)

Can detect all kind of material. Wide detection range. Can be used as normally open or normally closed. 24VDC. Possibility of connection with the help of banana cables.



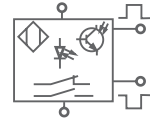
Made in France

MDL-ADO 164



Fiber Optical Sensor

Can detect all kind of material. Wide detection range. Can be used as normally open or normally closed. 24VDC.



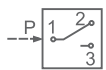
Made in France

MDL-ADO 165



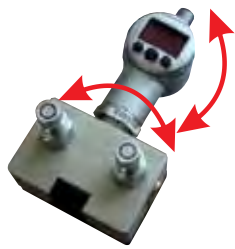
Pressure Switch

It has micrometric division which shows pressure value. Can be used as normally open / normally closed Output signals Pressure value is



Made in Germany

MDL-ADO 085



Digital Manometer

2ways rotatable digital display. Signaling at the min or max pressure. Adjustable hysteresis value. Analogue or digital output signal.



Made in Germany

MDL-ADO 075



Digital Manometer

Digital display. Signaling at the min or max pressure. Adjustable hysteresis value. Analogue or digital output signal.



Made in Germany

MDL-ADO 033



Pressure Switch

It converts the pressure value to electrical signal. Analogue output signal. Socket connection.



Made in Germany

MDL-ADO 068



Temperature Transmitter

It converts the temperature value to electrical signal. Analogue output signal. Socket connection.



Made in Germany

MDL-ADO 087



Limit Switch

Electrical limit switch with lever roller. Can be actuated from right or left side. Panel sockets are used for cable connections. Can be used as normally open or normally closed



Made in Türkiye

MDL-ADO 090



Flow Transmitter

It converts the flow rate to the electrical signal. Analogue output signal. Socket connection.



Made in Germany

MDL-ADO 088



Handheld Terminal

It converts the flow rate to the electrical signal. Analogue output signal. Socket connection.



Made in Germany

MDL-ADO 089



Eğitim Bilgi Didactic Ortantı Tasarruf  
Endüstri 4.0 Dijital sektör de  
Hareket Mesleki sanayi Ders K  
Yöntem Sistem Arıza Teknoloji Holografik  
Uzman Kontrol  
Teknik Uygulama  
Makina Verimlilik ölçü Aktarım Dinamik  
Enerji Üretim Lojik Sürec Optimum Rulman  
Süreç operatör çalışma Tecrübe Proje  
Hidrolik Montaj Dişli mesleki Üretim Mekanizma  
Endüstriyel İleri Seviye Kestirimci Bakım Sanal Fabrika Operatör  
Sertifika Basınc Valf Elektronik İleri Mekanik Öğrenim Sanayi Tecrübe PROSES Makina Seviye  
Ölçme Rulman Öngörü Personel Akademik Sistem uygulama Optimum Sanayi Dijital Dinamik Zaman Enerji farkındalık Deneyim  
Bağlantı Fabrika Eğitim fikir Set Zaman DERS Tecrübe Öğrenim Arıza Parkur okul YÖNTEM  
VERİM pnömatik Deneme Beceri teknoloji Mesleki Silindir Sistem Aktarım Yöntem Yorum  
Panel Teknoloji Yağ Servo Takım Deneyim Proje Aksam Temel Seviye Rulman Tasarruf Otomasyon Sema  
DERS Sürücü Verimlilik Teknik araç PRATİK Holografik Bilgi Basınc Yol ENÜSTRIYEL Fikir Güç  
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Teknik Temel seviye MÜHENDİS Süreç Mekanik Valf kavram makina Hidrolik Online UZMANLIK Bakım  
Elektro pnömatik okul ÇuÇ Servis Bilgi Uygulama Kavram makina Teknoloji UZMANLIK Bakım  
Modüler Uzman ÇÖZÜM Deneyim Servo Yağ akademi Tecrübe Holografik Vizyon Pnömatik Hidrolik



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