TELESTE

Installation Guide

EASI® MPR

Digital input and output cards

Contents

MPR Introduction

The EASI® MPR is a distributed PC-based Digital Video Management System for video and audio surveillance applications.

Welcome, and thank you for purchasing Teleste's EASI® Products.

General

The EASI® MPR Digital Video Management System is the ultimate answer to today's challenges in video and audio surveillance. It fulfils the requirements of large enterprises and smaller user applications alike.

System is used to monitoring real-time and recorded video, audio and text data from 1 to 100 local or remote MPR-Ds (digital video recorders) or MPR-Ns (network video recorders).

Digital inputs and outputs

You can connect external devices to the digital inputs and outputs of a recorder by using an I/O card. Available cards and the default configuration depend on the recorder model. This guide gives instructions for installing the digital I/O cards to a MPR-D and how to connect external devices to the cards.

Help documentation

This help documentation is available:
- **MPR Installation Guide**: Shows how to install the recorders, dome cameras and video matrices, and how to connect digital inputs and outputs. The guide is on the MPR Installation CD in PDF format.
- **MPR System Manager user manual**: Shows how to use the System Manager program for configuring the system.
- **MPR Workstation user manual**: Shows how to use the Workstation program for video and audio surveillance.

The PDF help documentation is on the MPR Installation CD. You can also access the MPR System Manager user manual and the MPR Workstation user manual by clicking Help in System Manager or Workstation.

Manuals for third party devices
When installing third party devices (audio devices, IP cameras, dome cameras, and video matrices), follow the manufacturer's instructions.

Technical support
For technical support and warranty issues, please contact the system supplier.
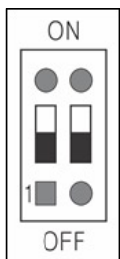
MPR IOC0404 card

These instructions show how to install the MPR IOC0404 card to a MPR-D and how to connect external devices to the digital inputs and outputs of the card. The card has 4 inputs and 4 outputs.

> **Note!** *You can set the polarity of all inputs and outputs in DVR settings.*
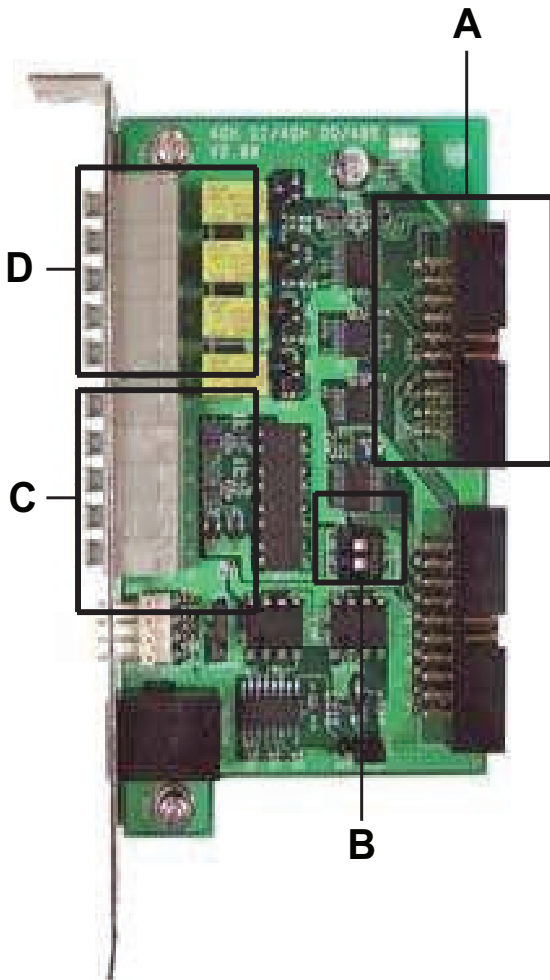
Picture 1. The MPR IOC0404 I/O card.

Picture 3. *Note! Make sure that the S1 switch on the I/O card is set to OFF (default position).*

Installing the I/O card

A. **DIO, 20-pin box connector (J3).** Connect this to the capture card. It is used for DI 1-4 and DO 1-4.
B. **DI switch (S1).** Set switches 1 and 2 to ON to use relay inputs without optoisolation or set them to OFF to use optoisolated voltage inputs (default).
C. **DI 1-4 (J4).** Connect input devices to this terminal block.
D. **DO 1-4 (S5).** Connect output devices to this terminal block.

To install the card:
1. Put the card to a slot in the DVR.
2. Connect one end of the supplied ribbon cable to the 20-pin box connector (J3) on the I/O card and the other end to the capture card.
3. By default, the card has been set to support optoisolated voltage inputs. To use relay inputs that are not optoisolated, set the switch S1 to ON.

No driver needs to be installed.

Connecting digital inputs

The I/O card has 4 digital inputs. The inputs can be configured to cause alarms and different types of alarm actions, for example, recording video or audio or activating a digital output.

Optoisolated inputs (voltage type)
It is best to connect inputs to the DVR as shown in picture 2. The input is optically isolated from the internal circuits of the DVR. The voltage to the "Digital in" pin can be from 3 V
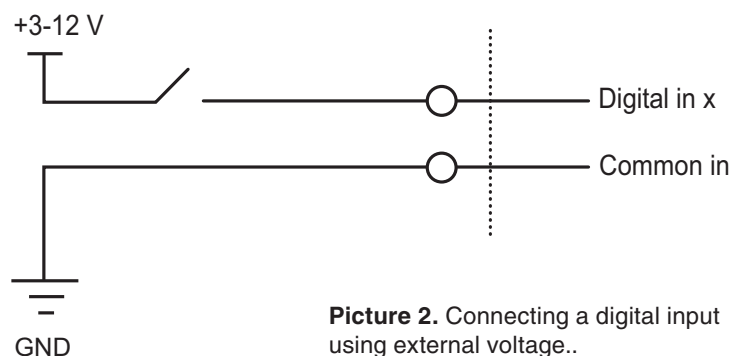
Picture 2. Connecting a digital input using external voltage..

Input specifications
- V in min 3 V
- V in max 12 V

to 12 V.

Inputs without optoisolation
You can also connect inputs as shown in picture 4, using the internal +5 V supply. Because the input is not isolated, an overvoltage to the input can destroy the DVR.

Picture 4. Connecting an alarm input without optoisolation.

Picture 5. *Note!* Set the S1 switch on the I/O card to ON.
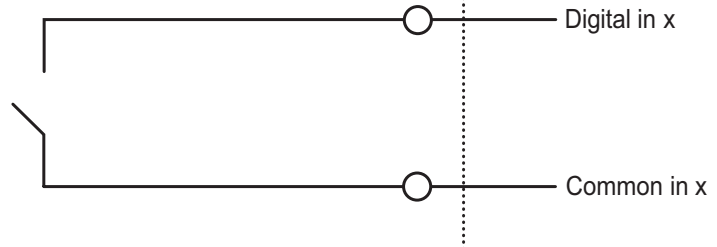
Input specifications
- Ω in min 0 Ω
- Ω in max 170 Ω

Connecting digital outputs

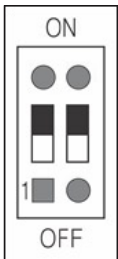Digital outputs are used to control external devices, for example, lights, gates, sirens. The devices can be switched on or off as a result of an alarm or manually from the user interface. There are 4 relay type outputs. Connect outputs as shown in picture 6.

Picture 6. Connecting outputs to the I/O card.
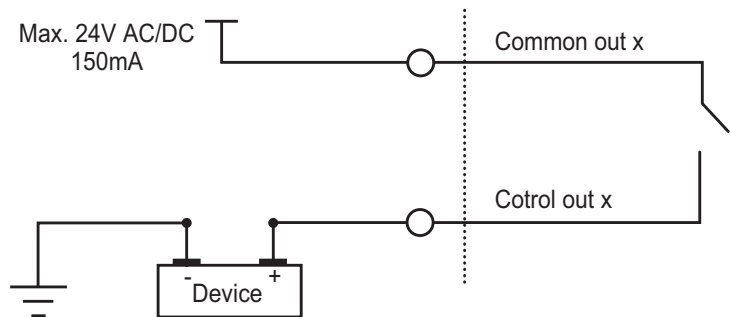
Max. 24V AC/DC 150mA

Common out x

Cotrol out x

Device

Output specifications
The outputs are potential free and normally open.
- V out max 24V AC/DC
- I out max 150 mA

Wiring

Connect the wires from external devices directly to the input and output blocks as shown in the picture 7.

DO 1
DO 2
DO 3
DO 4
DO 1-4 **common**
DI 1
DI 2
DI 3
DI 4
DI 1-4 **common**
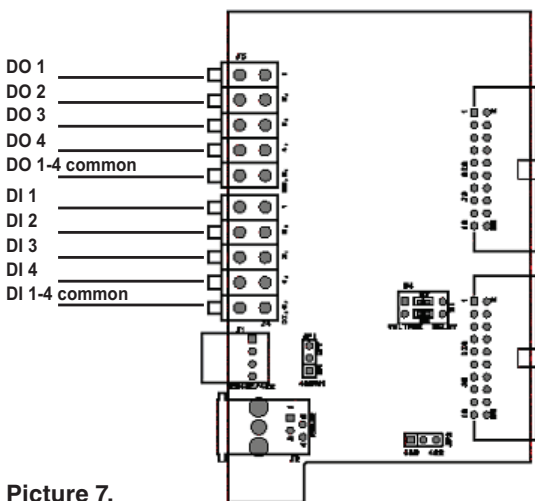
Picture 7.

MPR IOC1608 card

These instructions show how to install the MPR IOC1608 card to a MPR-D and how to connect external devices to the digital inputs and outputs of the card.

Introduction

The MPR IOC1608 card has 16 opto-isolated digital inputs (alarm inputs) and 8 relaytype outputs for controlling external devices. The card is controlled through a USB connection. The inputs and outputs are connected to a D37 connector.

The MPR IOC1608 card is required for using the MPR IOC3200 and MPR IOC0032 cards.

Installing the I/O card

To install the card:
1. Put the card to a card slot in the DVR.
2. Connect the AK3192 voltage adapter from the JPWR1 connector on the card to the +5V connector on the DVR.
3. Connect the USB10S control cable from the USBX1 connector on the card to the Front USB connector on the mother board.

Note! *Disable the USB connectors on the front panel of the DVR.*
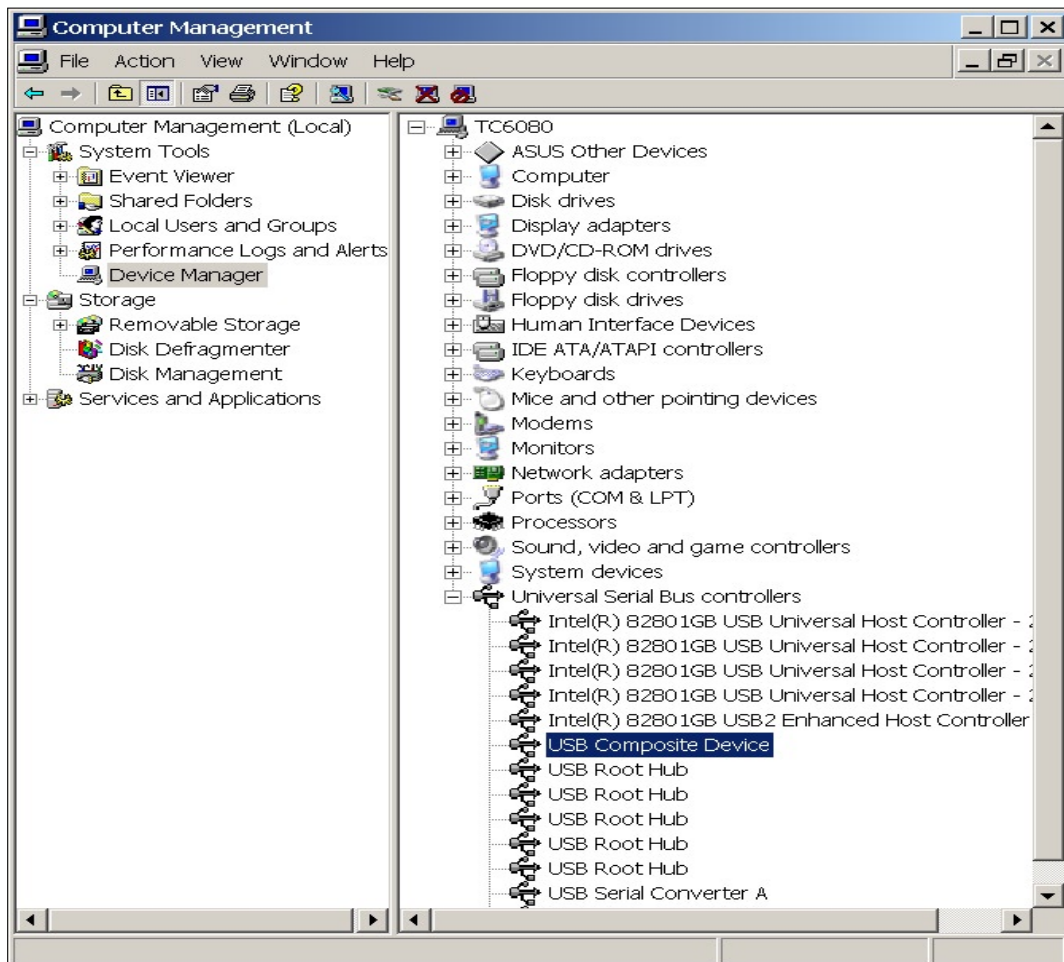
Picture 8. No drivers need to be installed.

4. Start the computer.
5. Exit the DVR program and make sure that Windows recognizes the card correctly:
   • Click **Start**, point to **Settings**, and click **Control Panel**. Double-click **Administrative Tools**, and then **Computer Management**. Click **Device Manager** and then double-click **Universal Serial Bus Controllers**.
   • Make sure that **USB Composite Device** is shown as

Connecting digital inputs

The I/O card has 16 digital inputs. The inputs can be configured to cause alarms and different types of alarm actions, for example, recording video or audio or activating a digital output.

Optoisolated inputs
It is best to connect alarm inputs to the DVR as shown in picture 9. The input is optically isolated from the internal circuits of the DVR. The voltage to the "Common in" pin can
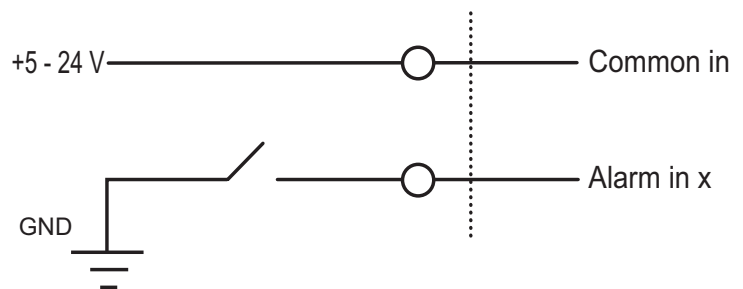
Picture 9. Connecting a digital input using external voltage.

Voltage input specifications
- V in min 5V
- V out max 24V

Inputs without optoisolation
You can also connect inputs as shown in picture 10, using the internal +5 V supply. Because the input is not isolated, an overvoltage to the input can destroy the DVR.
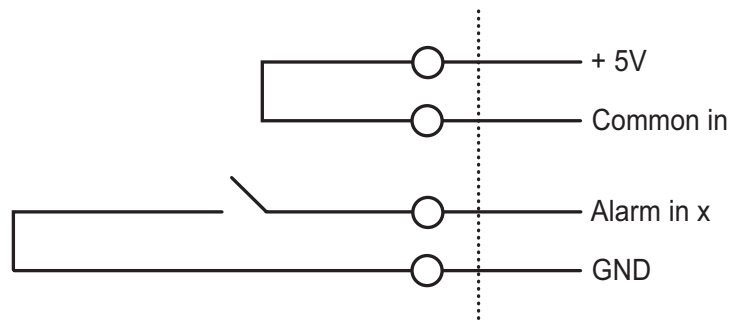
Picture 10. Connecting an alarm input without optoisolation.

Connecting digital outputs

Digital outputs are used to control external devices, for example, lights, gates, sirens. The devices can be switched on or off as a result of an alarm or manually from the user interface. There are 8 relay type outputs. Connect outputs
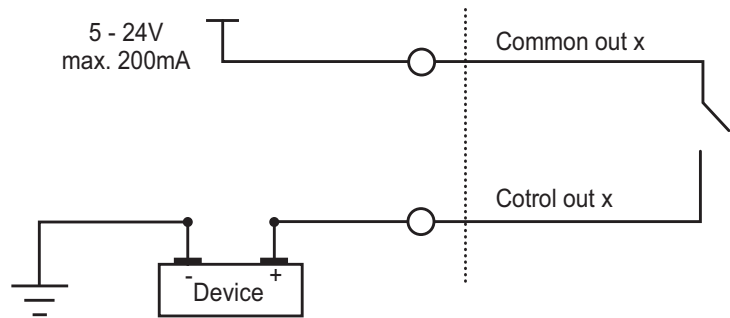

Picture 11. Connecting outputs to the I/O card.

5 - 24V
max. 200mA

Common out x

Cotrol out x

Device

If a very low power/current device is connected, you can also use the connection in the following figure. For example, it could be used to pull a 5V relay.
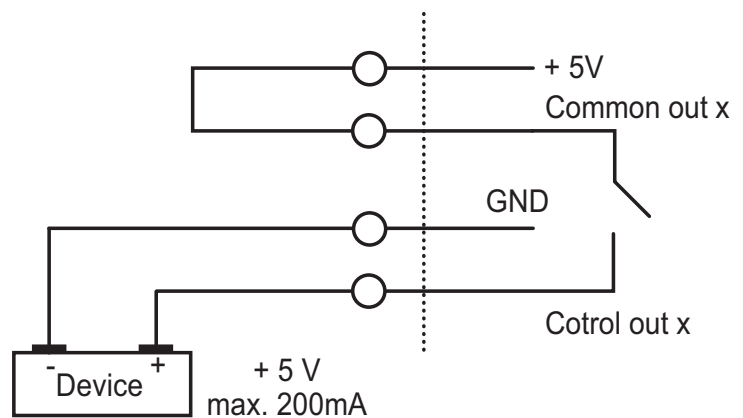
Picture 12. Connecting outputs to the I/O card

+ 5V

Common out x

GND

Cotrol out x

Device

+ 5 V
max. 200mA

Output specifications
The outputs are potential free and normally open.
- V out 5 - 24V AC/DC
- I out max 200 mA

Wiring

An I/O cable is supplied with card. The I/O cable has a D-37 connector and clearly labelled wires for connecting the inputs and outputs.
Connect the wires from external devices to the D-37

Pin	Type	Description	Pin	Type	Description
1	COMI	Common in	20	GND	Ground
2	AI1	Alarm in 1	21	CO1	Control out 1
3	AI2	Alarm in 2	22	COMO	Common out
4	AI3	Alarm in 3	23	CO2	Control out 2
5	AI4	Alarm in 4	24	COMO	Common out
6	AI5	Alarm in 5	25	CO3	Control out 3
7	AI6	Alarm in 6	26	COMO	Common out
8	AI7	Alarm in 7	27	CO4	Control out 4
9	AI8	Alarm in 8	28	COMO	Common out
10	AI9	Alarm in 9	29	CO5	Control out 5
11	AI10	Alarm in 10	30	COMO	Common out
12	AI11	Alarm in 11	31	CO6	Control out 6
13	AI12	Alarm in 12	32	COMO	Common out
14	AI13	Alarm in 13	33	CO7	Control out 7
15	AI14	Alarm in 14	34	COMO	Common out
16	AI15	Alarm in 15	35	CO8	Control out 8
17	AI16	Alarm in 16	36	COMO	Common out
18	COMI	Common in	37	+5V	+5 Volt Out
19	GND	Ground			

MPR IOC1616 card

These instructions show how to install the MPR IOC1616 card to a MPR-D and how to connect external devices to the digital inputs and outputs of the card. The card has 16 inputs and 16 outputs.

> *Note!* You can set the polarity of all inputs and outputs in DVR settings.
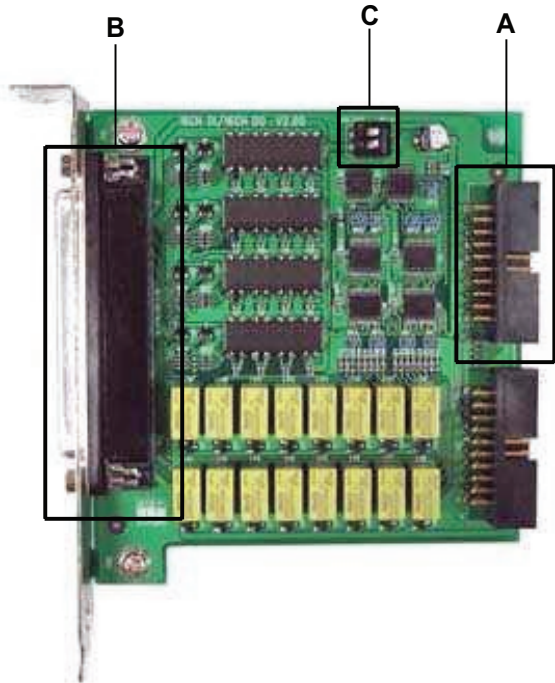
Picture 13. The MPR IOC1616 I/O card.

Picture 14. Connecting a digital input using external voltage..
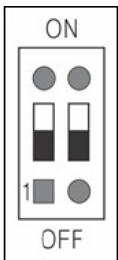
Picture 15. *Note! Make sure that the S1 switch on the I/O card is set to OFF (default position).*

Installing the I/O card

A. **DIO, 20-pin box connector (J2).** Connect this to the capture card. It is used for DI 1-16 and DO 1-16.
B. **DI 1-16/DO 1-16 (J1).** Connect input and output devices to this 37-pin DSUB female connector.
C. **DI switch (S1).** Set switches 1 and 2 to ON to use relay inputs without optoisolation or set them to OFF to use optoisolated voltage inputs (default).

To install the card:
1. Put the card to a slot in the DVR.
2. Connect one end of the supplied ribbon cable to the 20-pin box connector (J2) on the I/O card and the other end to the capture card.
3. By default, the card has been set to support optoisolated voltage inputs. To use relay inputs that are not optoisolated, set the switch S1 to ON.

No driver needs to be installed.

Connecting digital inputs

The I/O card has 16 digital inputs. The inputs can be configured to cause alarms and different types of alarm actions, for example: recording video or audio or activating a digital output.

Optoisolated inputs (voltage type)
It is best to connect alarm inputs to the DVR as shown in picture 14. The input is optically isolated from the internal circuits of the DVR. The voltage to the "Digital in" pin can be from 3 V to 12 V.

Voltage input specifications
- V in min 3 V
- V out max 12 V

Inputs without optoisolation (relay type)

You can also connect inputs as shown in picture 16, using the internal +5 V supply. Because the input is not isolated, an overvoltage to the input can destroy the DVR.

Picture 16. Connecting an alarm input without optoisolation.

Digital in x

Common in x

Input specifications
- Ω in min 0 Ω
- Ω in max 170 Ω
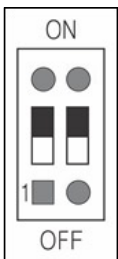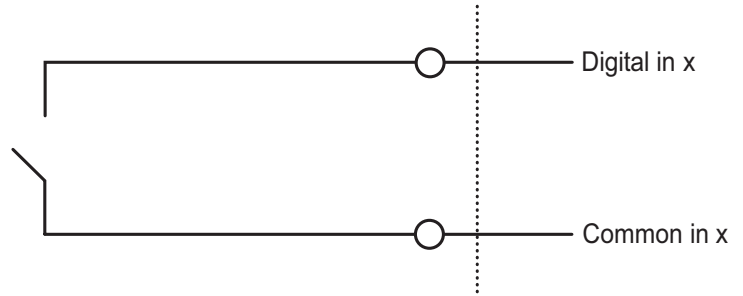
Picture 17. *Note! Set the S1 switch on the I/O card to ON.*

Connecting digital outputs

Digital outputs are used to control external devices, for example, lights, gates, sirens. The devices can be switched on or off as a result of an alarm or manually from the user interface. There are 4 relay type outputs. Connect outputs

Max. 24V AC/DC 150mA

Common out x

Cotrol out x

Device
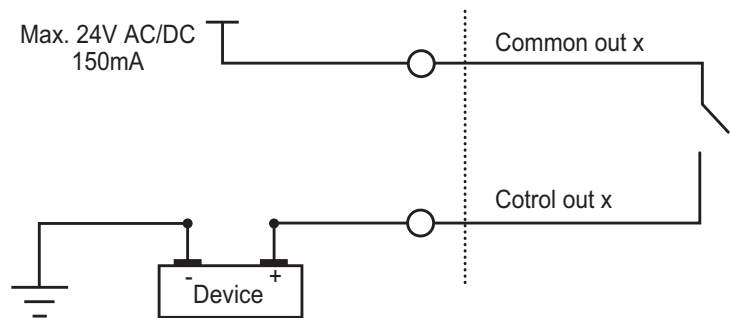
Picture 18. Connecting outputs to the I/O card.

Output specifications

The outputs are potential free and normally open.
- V out max 24V AC/DC
- I out max 150 mA

Wiring

Connect the wires from external devices to the 37-pin DSUB-connector on the I/O card as shown in the picture 19 and the table below.
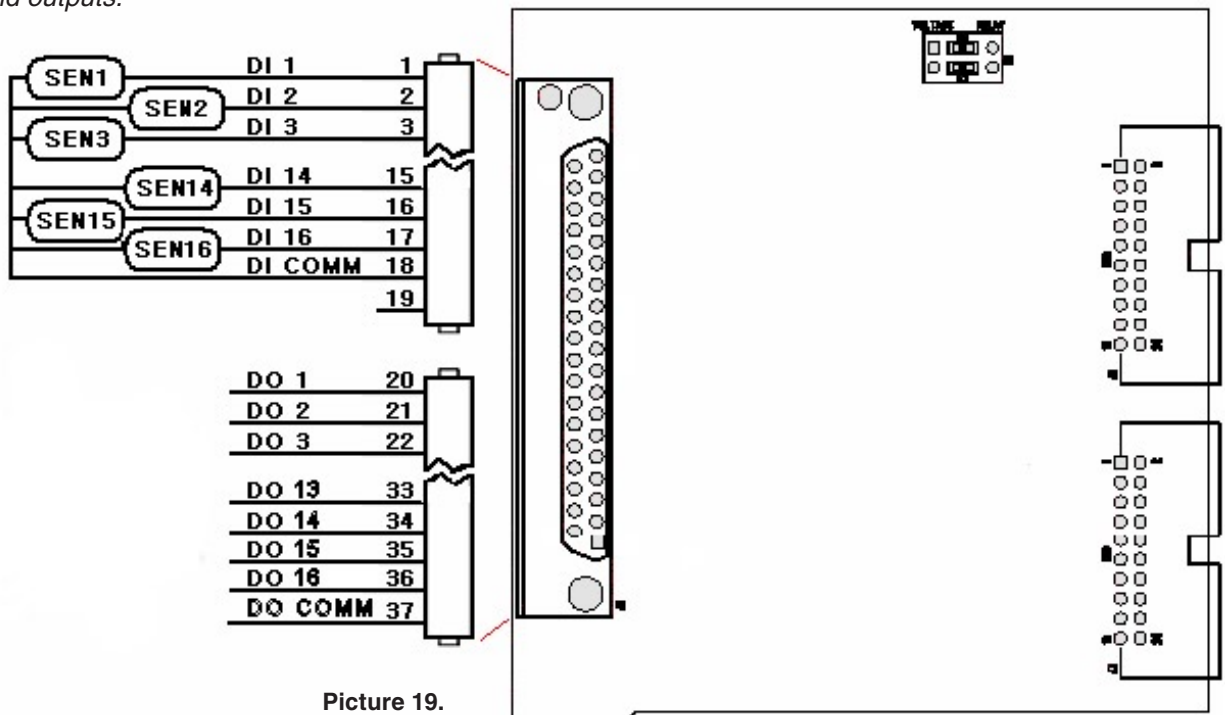
Picture 19.

Pin	Code	Description	Pin	Code	Description
1	DI-01	Digital input 1	20	DO-01	Digital output 1
2	DI-02	Digital input 2	21	DO-02	Digital output 2
3	DI-03	Digital input 3	22	DO-03	Digital output 3
4	DI-04	Digital input 4	23	DO-04	Digital output 4
5	DI-05	Digital input 5	24	DO-05	Digital output 5
6	DI-06	Digital input 6	25	DO-06	Digital output 6
7	DI-07	Digital input 7	26	DO-07	Digital output 7
8	DI-08	Digital input 8	27	DO-08	Digital output 8
9	DI Comm/S-Com	Common in 9	28	DO Comm/CCom	DO Common
10	DI-9	Digital input 10	29	DO-09	Digital output 9
11	DI-10	Digital input 11	30	DO-10	Digital output 10
12	DI-11	Digital input 12	31	DO-11	Digital output 11
13	DI-12	Digital input 13	32	DO-12	Digital output 12
14	DI-13	Digital input 14	33	DO-13	Digital output 13
15	DI-14	Digital input 15	34	DO-14	Digital output 14
16	DI-15	Digital input 16	35	DO-15	Digital output 15
17	DI-16	Digital input 17	36	DO-16	Digital output 16
18	DI Comm/S-Com	Common in	37	DO Comm/C-Com	Common out
19	NC	Not connected			

MPR IOC0032 card

These instructions show how to install the MPR IOC0032 card to a MPR-D and how to connect external devices to the digital outputs of the card.

Introduction

The MPR IOC0032 card has 32 relay-type outputs for controlling external devices. The card is controlled through the MPR IOC1608 card using an I2C connection.
The outputs are connected to a D37 connector.

The MPR IOC0032 card requires the MPR IOC1608-B/C card (or MOX4, MOX8, or MQ2).

Installing the I/O card

To install the card:
1. Put the card to a card slot in the DVR.
2. Connect the AK3192 voltage adapter from the JPWR1 connector on the card to the +5V connector on the DVR.
3. Connect the I2C cable from the I2C connector on the MPR IOC3200 card to the I2C connector on the MPR IOC1608-B/C card (or MOX4, MOX8, or MQ2).
4. Start the computer.
No driver needs to be installed.

Connecting digital outputs

Digital outputs are used to control external devices, for example, lights, gates, sirens. The devices can be switched on or off as a result of an alarm or manually from the user interface. There are 32 relay type outputs. Connect outputs
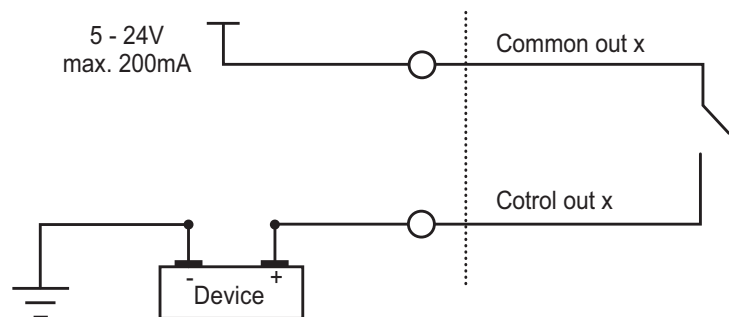
**Picture 20.** Connecting outputs to the I/O card.

Output specifications
The outputs are potential free and normally open.
- V out max 5 - 24V AC/DC
- I out max 200 mA

If a very low power/current device is connected, you can also use the connection in the picture 21. For example, this connection can be used to pull a 5V relay.

Picture 21.

+ 5V

Common out x

GND

Cotrol out x

Device − +   + 5 V max. 200mA
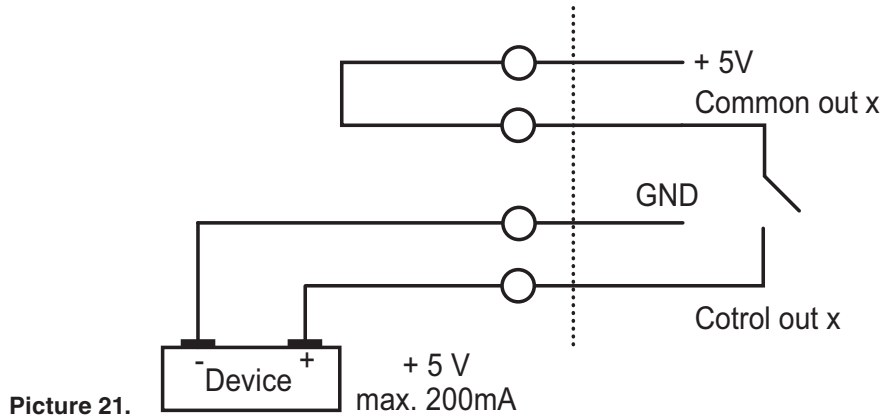
Wiring

An I/O cable is supplied with the card. The I/O cable has a D-37 connector and clearly labelled wires for connecting the inputs and outputs.
Connect the wires from external devices to the D-37

Pin	Type	Description	Pin	Type	Description
1	COMO	Common Out	20	COMO	Common Out
2	CO25	Control Out 25	21	CO9	Control Out 9
3	CO26	Control Out 26	22	CO10	Control Out 10
4	CO27	Control Out 27	23	CO11	Control Out 11
5	CO28	Control Out 28	24	CO12	Control Out 12
6	CO29	Control Out 29	25	CO13	Control Out 13
7	CO30	Control Out 30	26	CO14	Control Out 14
8	CO31	Control Out 31	27	CO15	Control Out 15
9	CO32	Control Out 32	28	CO16	Control Out 16
10	CO33	Control Out 33	29	CO17	Control Out 17
11	CO34	Control Out 34	30	CO18	Control Out 18
12	CO35	Control Out 35	31	CO19	Control Out 19
13	CO36	Control Out 36	32	CO20	Control Out 20
14	CO37	Control Out 37	33	CO21	Control Out 21
15	CO38	Control Out 38	34	CO22	Control Out 22
16	CO39	Control Out 39	35	CO23	Control Out 23
17	CO40	Control Out 40	36	CO24	Control Out 24
18	COMO	Common Out	37	+5V	+5 Volt
19	GND	Ground			

MPR IOC3200 card

These instructions show how to install the MPR IOC3200 card to a MPR-D and how to connect external devices to the digital inputs of the card.

Introduction

The MPR IOC3200 card has 32 opto-isolated digital inputs (alarm inputs). The card is controlled through the MPR IOC1608 card using an I2C connection. The inputs are connected to a D37 connector.

The MPR IOC3200 card requires the MPR IOC1608-B/C card (or MOX4, MOX8, or MQ2).

Installing the I/O card

To install the card:
1. Put the card to a card slot in the DVR.
2. Connect the AK3192 voltage adapter from the JPWR1 connector on the card to the +5V connector on the DVR.
3. Connect the I2C cable from the I2C connector on the MPR IOC3200 card to the I2C connector on the MPR IOC1608-B/C card (or MOX4, MOX8, or MQ2).
4. Start the computer.
No drivers need to be installed.

Connecting digital inputs

The I/O card has 32 digital inputs. The inputs can be configured to cause alarms and different types of alarm actions, for example, recording video or audio or activating a digital output.

Optoisolated inputs
It is best to connect alarm inputs to the DVR as shown in picure 22. The input is optically isolated from the internal circuits of the DVR. The voltage to the "Common in" pin can
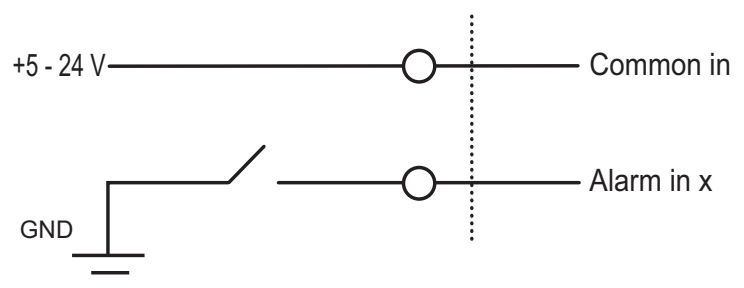
Picture 22. Connecting a digital input using external voltage.

+5 - 24 V ———————————○ ┆———— Common in

GND

———————————○ ┆———— Alarm in x

Voltage input specifications
- V in min 5V
- V out max 24V

Inputs without optoisolation
You can also connect inputs as shown in picture 23, using the internal +5 V supply. Because the input is not isolated, an overvoltage to the input can destroy the DVR.

+ 5V

Common in

Alarm in x

GND

Picture 23. Connecting an alarm input without optoisolation.
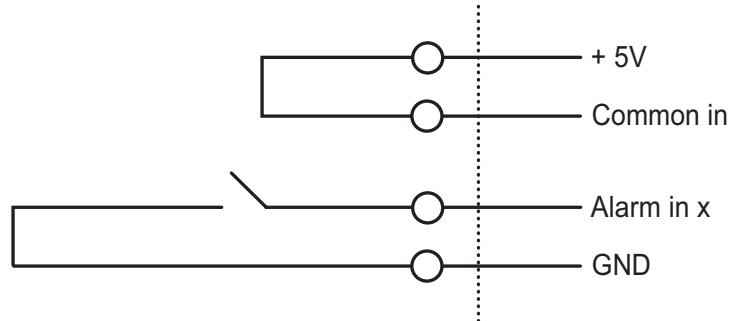
Wiring

An I/O cable is supplied with card. The I/O cable has a D-37 connector and clearly labelled wires for connecting the inputs. Connect the wires from external devices to the D-37

Pin	Type	Description	Pin	Type	Description
1	COMI	Common in	20	COMI	Common in
2	AI17	Alarm in 17	21	AI33	Alarm in 33
3	AI18	Alarm in 18	22	AI34	Alarm in 34
4	AI19	Alarm in 19	23	AI35	Alarm in 35
5	AI20	Alarm in 20	24	AI36	Alarm in 36
6	AI21	Alarm in 21	25	AI37	Alarm in 37
7	AI22	Alarm in 22	26	AI38	Alarm in 38
8	AI23	Alarm in 23	27	AI39	Alarm in 39
9	AI24	Alarm in 24	28	AI40	Alarm in 40
10	AI25	Alarm in 25	29	AI41	Alarm in 41
11	AI26	Alarm in 26	30	AI42	Alarm in 42
12	AI27	Alarm in 27	31	AI43	Alarm in 43
13	AI28	Alarm in 28	32	AI44	Alarm in 44
14	AI29	Alarm in 29	33	AI45	Alarm in 45
15	AI30	Alarm in 30	34	AI46	Alarm in 46
16	AI31	Alarm in 31	35	AI47	Alarm in 47
17	AI32	Alarm in 32	36	AI48	Alarm in 48
18	COMI	Common in	37	+5V	+5 Volt
19	GND	Ground			

VCC04025 capture card

These instructions show how to connect external devices to the digital inputs and outputs of the VCC04025 capture card.

Introduction

The card has 4 contact-closure inputs and 5 solid-state relay outputs. Inputs and outputs are connected to the VCC04025 capture card using IOD25S, which consists of an I/O lines cable and an I/O bracket. The bracket is installed to an empty card slot and connected to the VCC04025 capture card.

Inputs and outputs are connected to the D-25 connector on the I/O bracket using the TIO-0405 I/O cable.

Installing IOD25S

To install IOD25S:
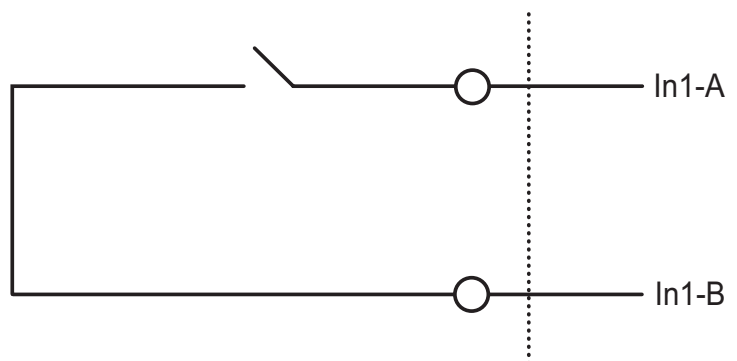1. Put the bracket to an empty card slot.
2. Connect the bracket to the VCC04025 capture card using a 20-pin ribbon cable.
No drivers need to be installed.
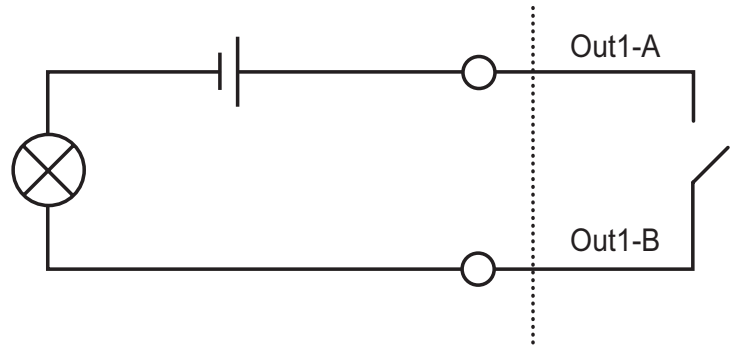
Connecting inputs

Connect inputs as shown in picture 24. Each input is composed of a pair of wires. There is no polarity between the two wires of one pair, and both wires can be used

Picture 24. Connecting digital inputs.

Connecting outputs

Connect outputs as shown in picture 25. Each output line is composed of a pair of wires. There is no polarity between the two wires of one pair, and both wires can be used as

Picture 25. Connecting outputs.

Wiring

The TIO-0405 I/O cable is supplied with IOD25S.
The I/O cable has a D-25 connector and colored wires for connecting the inputs and outputs.

Pin	Description	Color	Pin	Description	Color
1	Ground	Black	14	Ground	Brown/white
2	In1-A	Brown	15	In1-B	Red/white
3	In2-A	Red	16	In2-B	Orange/white
4	In3-A	Orange	17	In3-B	Green/white
5	In4-A	Yellow	18	In4-B	Blue/white
6	Out1-A	Green	19	Out1-B	Violet/white
7	Out2-A	Blue	20	Out2-B	Red/black
8	Out3-A	Violet	21	Out3-B	Orange/black
9	Out4-A	Gray	22	Out4-B	Yellow/black
10	Out5-A	White	23	Out5-B	Green/black
11	Not Connected	Light green	24	Not connected	Black/gray
12	Not connected	Pink	25	Not connected	Black/gray
13	Not connected	Pink/black			

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