

## Surge and lightning protection



### General

MJK Surge Arresters are used in applications where excessive voltages caused by lightnings or other transients can be expected. MJK Surge Arresters is constructed with dual protection to cover both inter-mediate and primary protection. Since the electric power from a lightning is

tremendeous, it is impossible to obtain 100 % protection, but MJK Surge Arresters will give effective protection in case of a lightning stroke close to the installation or surges from lightning strokes in other parts of the installation by conducting the surge voltages to ground.

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### Features

- Protects measuring devices from damage by conducting large power surges and short transients effectively to ground.
- Units for protecting of 2-wire / 4 - 20 mA, 3-wire / 4 - 20 mA, telephone lines and 230 V mains supply is available.
- Surge and transient protection in accordance with Class B (intermediate protection) and Class C (primary protection).

### Application

- Protection of telephone lines in regions with thunder.
- Protection of 4 - 20 mA transmitters installed at high / distant locations.
- Protection of 3-wire ultrasonic level meters installed at high locations in regions where thunder often occurs.
- Protection of 230 V supply to MJK Pump Controller 704 and MJK Data Transmitter 795 against surges and transients from lightning strokes in the mains network.
- DIN-rail mounting (Panel) or on site mounting (Field).

### Function

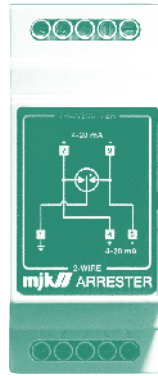
MJK Surge Arresters are designed with gas arresters, varistors and transil diodes, and for the units for protection of mains supply also with thermal cut-out to protect the varistors against overheating.

The units are available in a number of variants for use in instrumentation applications and on SCADA systems.

The components in the surge arresters will not be damaged when activated, so there will no need for replacement after a lightning bolt.

# Data sheet

## Surge arrester for 2-wire connection

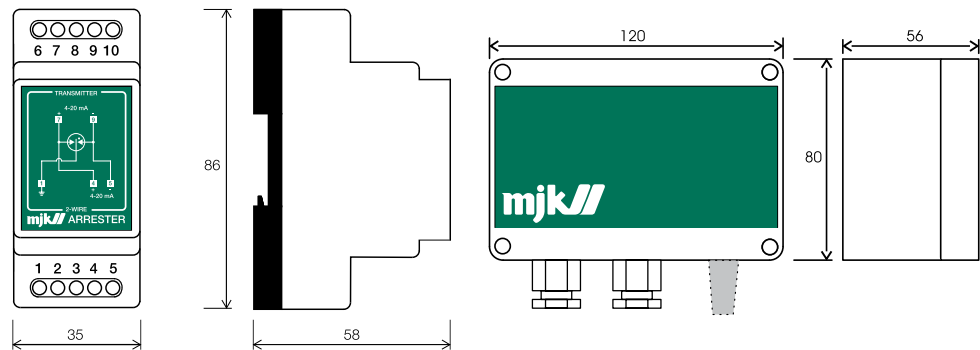


Used for surge protection of measuring signals from 2-wire transmitters mounted directly in a plant subject to regular lightning strokes. Especially in sewage plants where many transmitters are placed around the plant, protection of the wires is an efficient way to protect the individual transmitters and to prevent damage to other equipment such as PLCs, signal converters and other measuring and control equipment. Available for DIN-rail mounting (panel) or on-site mounting (field).

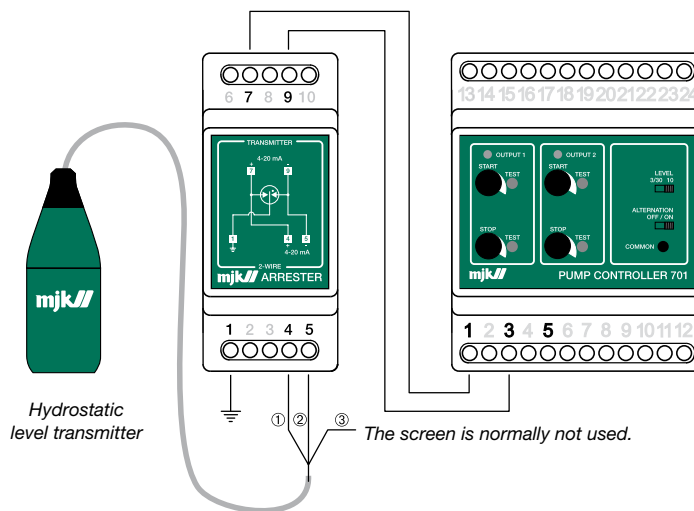
## Specifications

Specifications		
	Panel	Field
Input	4 - 20 mA	
Output	4 - 20 mA	
Recommended earth wire gauge	Min. 4 mm <sup>2</sup>	
Max. forward voltage	30 V DC	
Max. discharge current	20 kA	
Max. resistance	20 Ω per wire/signal	
Temperature	- 20 ... + 60 °C	
Enclosure	IP 22	IP 65
Mounting	DIN-rail	Wall or mounting

## Dimensions



## Connections



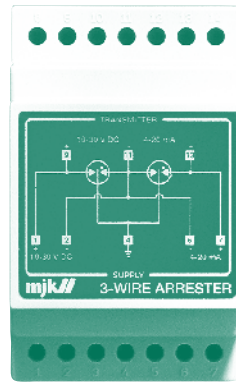
A MJK Pump Controller 701 is surge protected on the signal input with a MJK 2-wire surge protector.

## Order numbers

200180	2-wire surge arrester (panel)
200181	2-wire surge arrester (field)

# Data sheet

## Surge arrester for 3-wire connection

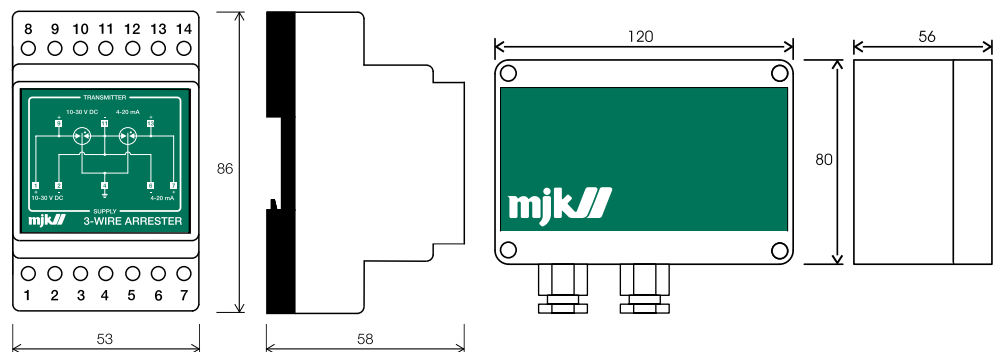


Used for surge protection of signals received from 3-wire transmitters mounted directly in a plant subject to regular lightning strokes. Especially in sewage plants, where many transmitters are placed around the plant, protection on the wires is an efficient way to protect the individual transmitters and to prevent damage to other equipment such as PLCs, signal converters and frequency converters. Available for DIN rail mounting (panel) or on site mounting (field)

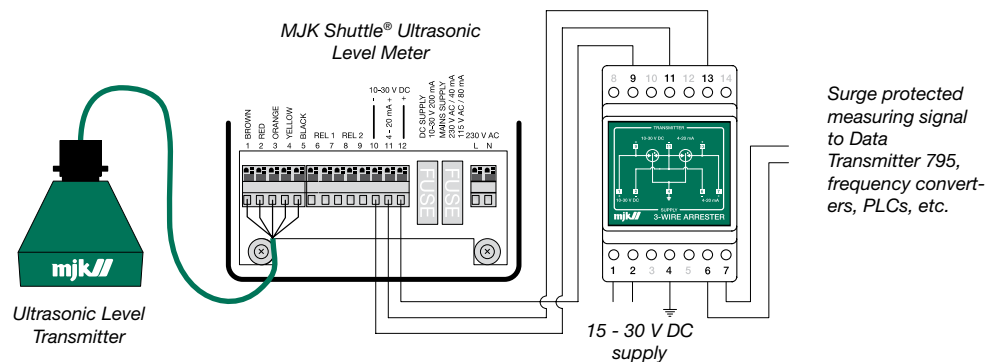
## Specifications

Specifications	Panel	Field
Input	4 - 20 mA (3-wire)	
Output	4 - 20 mA (3-wire)	
Recommended earth wire gauge	Min. 4 mm <sup>2</sup>	
Max. forward voltage	30 V DC	
Max. discharge current	20 KA	
Max. resistance	20 Ω per wire/signal	
Temperature	- 20 ... + 60 °C	
Enclosure	IP 22	IP 65
Mounting	DIN-rail	Wall or mounting

## Dimensions



## Connections

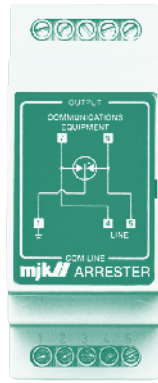


## Order numbers

200182	3-wire surge arrester (panel)
200183	3-wire surge arrester (field)

# Data sheet

## Surge arrester for communications line

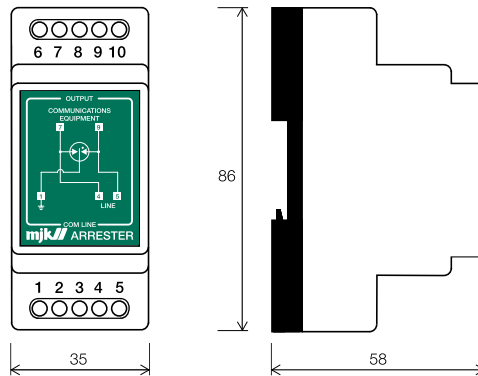


Used for surge protection of communications lines such as telephone lines, twisted pair cables between pumping stations and serial communication links between instruments, PLC's etc. Surge protection is efficient for protection of remote installations or connections to the telephone network and user owned cables between pumping stations and water drillings on water works. The surge protector prevents damages on other equipment on the plant.

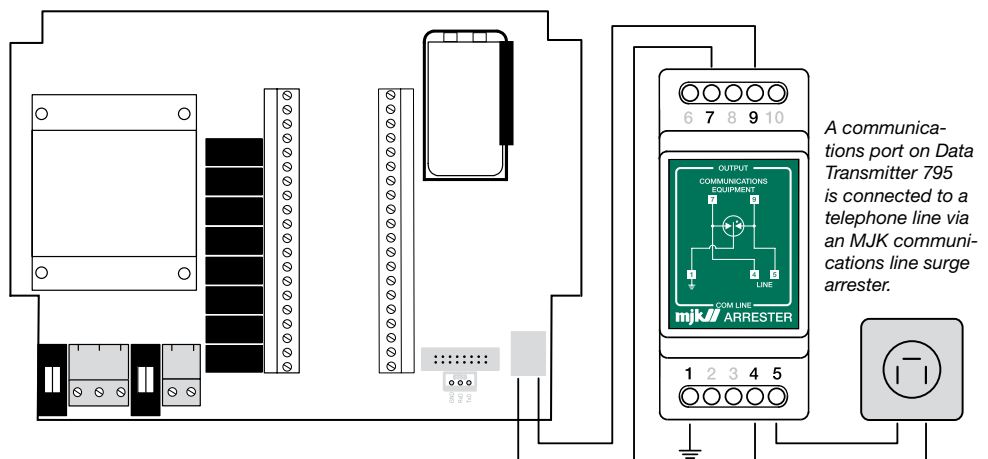
## Specifications

Specifications	
Input	From communication line
Output	From modem or serial port
Recommended earth wire gauge	Min. 4 mm <sup>2</sup>
Max. forwars voltage	170 V DC for 200186 and 200187, 13 V DC for 200184
Max. discharge current	20 KA
Max. resistance	20 Ω per wire/signal
Temperature	- 20 ... + 60 °C
Enclosure	IP 22
Mounting	DIN-rail

## Dimensions



## Connections

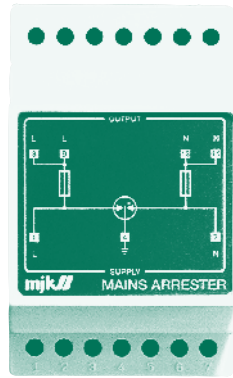


## Order numbers

200184	Surge arrester for RS-485 lines (panel)
200186	Surge arrester for telephone lines with terminals (panel)
200187	Surge arrester for telephone lines with RJ-45 plug and connecting cable (panel)

# Data sheet

## Surge arrester for mains supply



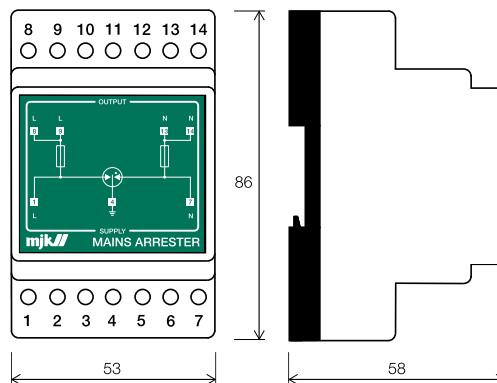
Used for surge protection of 230 V AC mains supply for measuring-, control and monitoring equipment

MJK recommends the use of mains supply surge arresters for equipment at remote locations such as pumping stations and small waterworks, where devices such as Data Transmitters and Pump Controllers are particularly exposed.

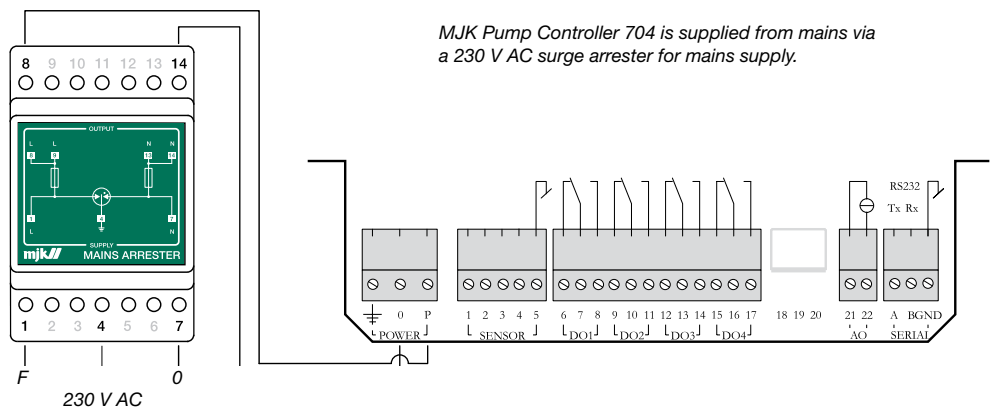
## Specifications

Specifications	
Input	230 V AC
Max. load	200 VA
Recommended earth wire gauge	Min. 4 mm <sup>2</sup>
Max. forward voltage	280 V AC
Max. discharge current	20 KA
Max. resistance	< 2 Ω
Temperature	- 20 ... + 60 °C
Enclosure	IP 22
Mounting	DIN-rail

## Dimensions



## Connections



## Order number

200185 230 V AC surge arrester for mains supply (panel)

## About MJK

**MJK Automation A/S** develop and manufacture measuring and control equipment for control and monitoring of pumping stations, wastewater treatment plants, waterworks and other industries. All equipment is manufactured at our factory in Denmark.

**MJK's** mission is to develop and manufacture equipment for process- and environmental plants to contribute to a better and cleaner environment.

**MJK** is a limited company with parent company in Denmark and subsidiary companies

- MJK Automation AS in Norway
- MJK Automation AB in Sweden
- MJK Automation BV in The Netherlands

**MJK** supplies and service own equipment in more than 40 countries worldwide, through own companies or through authorized distributors.



*MJK's domicile in Nærum, near Copenhagen, Denmark.*

Our product programme includes:

- level measurement
- pump controllers
- open channel flowmeters and flumes
- pH-, redox- and temperature transmitters
- turbidity- and suspended solids meters
- indication and registration equipment
- data transmission
- PC software for monitoring
- liquid samplers