



The **MK72-S01-Ex/24VDC** through **MK72-S22-Ex/24VDC** are solenoid drivers with intrinsically safe outputs. They are designed to isolate and power loads in hazardous locations. Typical applications are intrinsically safe solenoids and pilot lights.

The output voltage of the MK72-S01-Ex/24VDC and MK72-S02-Ex/24VDC may be converted from 12 to 6 VDC or 24 to 15 VDC by jumpering terminals 3-4.

The output voltage of the other devices is fixed and varies from 8-24 VDC.

Loads can be controlled in two different ways:

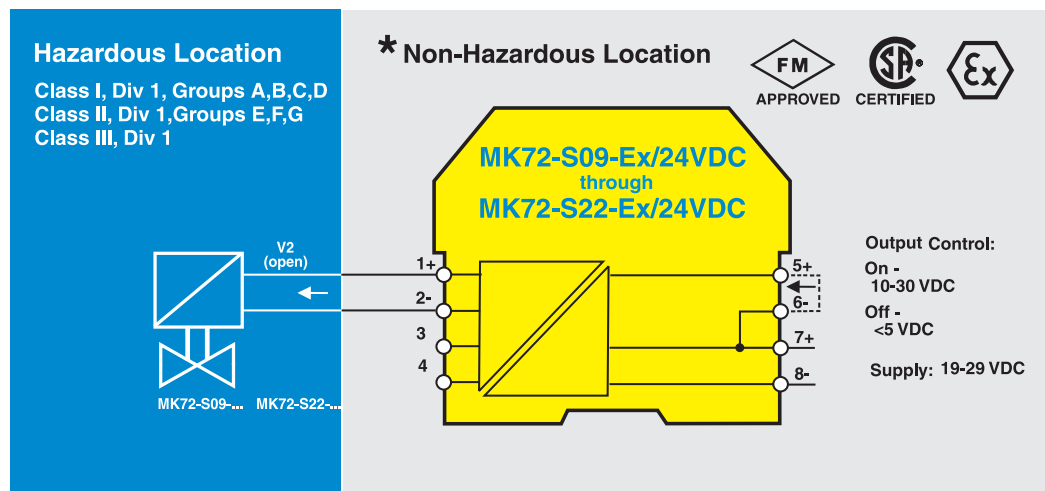
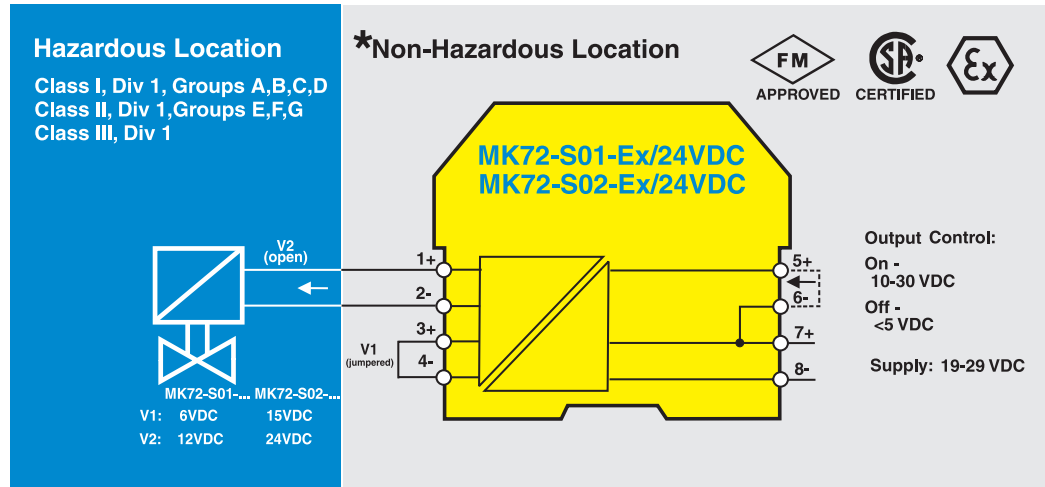
- Control circuit: use an isolated contact to switch terminal 5 to terminal 6 or apply a control voltage to terminal 5. In this operating mode the switching frequency is 250 Hz.
- Power supply: jumper terminals 5-6 and apply a switched 24 VDC to terminals 7-8. In this operating mode the switching frequency is limited to 25 Hz.

The input and output circuits of both devices are galvanically isolated from each other. A green LED indicates "Power ON" status and a yellow LED indicates "Output ON" status.

*** These devices may be installed in a Class I, Division 2, Group A-D area.**

Connection Diagram

- MK72-S01-Ex/24VDC
- MK72-S02-Ex/24VDC
- MK72-S09-Ex/24VDC
- MK72-S10-Ex/24VDC
- MK72-S11-Ex/24VDC
- MK72-S12-Ex/24VDC
- MK72-S13-Ex/24VDC
- MK72-S14-Ex/24VDC
- MK72-S15-Ex/24VDC
- MK72-S16-Ex/24VDC
- MK72-S17-Ex/24VDC
- MK72-S18-Ex/24VDC
- MK72-S19-Ex/24VDC
- MK72-S20-Ex/24VDC
- MK72-S21-Ex/24VDC
- MK72-S22-Ex/24VDC

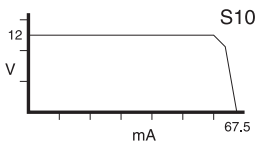
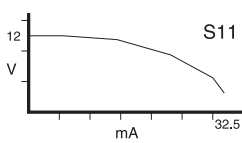
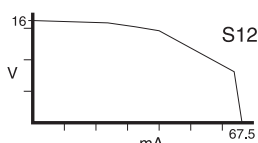


Solenoid Driver MK72-S...-Ex/24VDC (01,02,09)

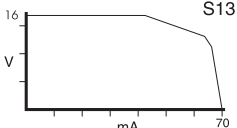
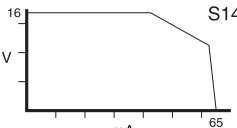
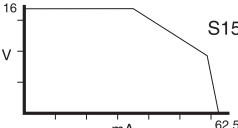
Type	MK72-S01-Ex/24VDC	MK72-S02-Ex/24VDC	MK72-S09-Ex/24VDC
ID Number	M7507000	M7507200	M7507328
Power Supply			
Supply voltage	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple
Current consumption	approx. 90 mA	approx. 90 mA	approx. 80 mA
Galvanic isolation	between input, output and supply circuits, test voltage 2.5 kVrms	between input, output and supply circuits, test voltage 2.5 kVrms	between input, output and supply circuits, test voltage 2.5kVrms
Input Circuit			
“OFF” signal	≤5 V	≤5 V	≤5 V
“ON” signal	10-30 VDC	10-30 VDC	10-30 VDC
Input current	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC
On-delay	≤2 ms	≤2 ms	≤2 ms
Intrinsic Safety Parameters	See page K12	See page K12	See page K12
Output Circuit			
Output voltage	12 VDC (6 VDC with 3-4 jumpered)	24 VDC (15 VDC with 3-4 jumpered)	22 VDC *
Output current	50 mA, short-circuit protected	25 mA, short-circuit protected	45 mA
Output characteristics			<p>The graph shows the output characteristics for the S09 model. The y-axis represents voltage (V) and the x-axis represents current (mA). The voltage is constant at 22V for currents up to approximately 35mA. Beyond 35mA, the voltage drops linearly to 0V at 45mA.</p>
Switching frequency			
- via control circuit	≤250 Hz	≤250 Hz	≤250 Hz
- via supply voltage	≤25 Hz	≤25 Hz	≤8 Hz
LED Indications			
Power “On”	green	green	green
Output energized	yellow	yellow	yellow
Housing Style	Diagram A (page A17)	Diagram A (page A17)	Diagram B (page A17)

* Designed to energize specific valves. Consult factory for special valve control characteristics.

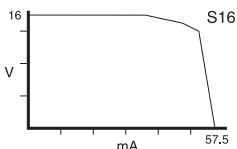
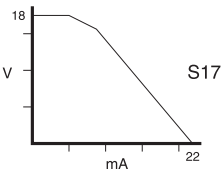
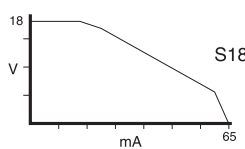
Solenoid Driver
MK72-S...-Ex/24VDC (10,11,12)

Type	MK72-S10-Ex/24VDC	MK72-S11-Ex/24VDC	MK72-S12-Ex/24VDC
ID Number	M7507331	M7507332	M7507333
Power Supply			
Supply voltage	19-29 VDC, $\leq 10\%$ ripple	19-29 VDC, $\leq 10\%$ ripple	19-29 VDC, $\leq 10\%$ ripple
Current consumption	approx. 90 mA	approx. 35 mA	approx. 90 mA
Galvanic isolation	between input, output and supply circuits, test voltage 2.5 kVrms	between input, output and supply circuits, test voltage 2.5 kVrms	between input, output and supply circuits, test voltage 2.5 kVrms
Input Circuit			
"OFF" signal	≤ 5 V	≤ 5 V	≤ 5 V
"ON" signal	10-30 VDC	10-30 VDC	10-30 VDC
Input current	≤ 1 mA @ 24 VDC	≤ 1 mA @ 24 VDC	≤ 1 mA @ 24 VDC
On-delay	≤ 2 ms	≤ 2 ms	≤ 2 ms
Intrinsic Safety Parameters	See page K13	See page K13	See Page K13
Output Circuit			
Output voltage	12 VDC	12 VDC	16 VDC
Output current	67.5 mA	32.5 mA	67.5 mA
Output characteristics			
Switching frequency			
- via control circuit	≤ 250 Hz	≤ 250 Hz	≤ 250 Hz
- via supply voltage	≤ 8 Hz	≤ 8 Hz	≤ 8 Hz
LED Indications			
Power "On"	green	green	green
Output energized	yellow	yellow	yellow
Housing Style	Diagram B (page A17)	Diagram B (page A17)	Diagram B (page A17)

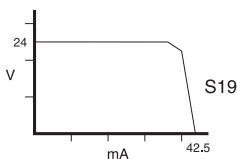
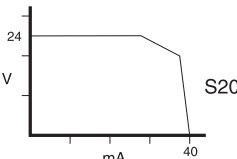
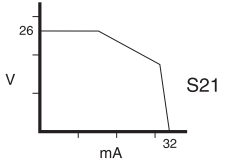
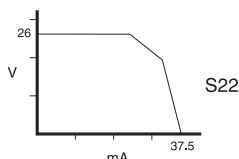
Solenoid Driver MK72-S...-Ex/24VDC (13,14,15)

Type	MK72-S13-Ex/24VDC	MK72-S14-Ex/24VDC	MK72-S15-Ex/24VDC
ID Number	M7507334	M7507330	M7507335
Power Supply			
Supply voltage	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple
Current consumption	approx. 95 mA	approx. 90 mA	approx. 100 mA
Galvanic isolation circuit and output circuit	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuits, test voltage 2.5 kVrms
Input Circuit			
“OFF” signal	≤5 V	≤5 V	≤5 V
“ON” signal	10-30 VDC	10-30 VDC	10-30 VDC
Input current	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC
On-delay	≤2 ms	≤2 ms	≤2 ms
Intrinsic Safety Parameters	See page K13	See page K13	See page K13
Output Circuit			
Output voltage	16 VDC	16 VDC	16 VDC
Output current	70 mA	65 mA	62.5 mA
Output characteristics			
Switching frequency			
- via control circuit	≤250 Hz	≤250 Hz	≤250 Hz
- via supply voltage	≤8 Hz	≤8 Hz	≤8 Hz
LED Indications			
Power “On”	green	green	green
Output energized	yellow	yellow	yellow
Housing Style	Diagram B (page A17)	Diagram B (page A17)	Diagram B (page A17)

Solenoid Driver
MK72-S...-Ex/24VDC (16,17,18)

Type	MK72-S16-Ex/24VDC	MK72-S17-Ex/24VDC	MK72-S18-Ex/24VDC
ID Number	M7507336	M7507337	M7507338
Power Supply			
Supply voltage	19-29 VDC, $\leq 10\%$ ripple	19-29 VDC, $\leq 10\%$ ripple	19-29 VDC, $\leq 10\%$ ripple
Current consumption	approx. 105 mA	approx. 35 mA	approx. 100 mA
Galvanic isolation	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms
Input Circuit			
"OFF" signal	≤ 5 V	≤ 5 V	≤ 5 V
"ON" signal	10-30 VDC	10-30 VDC	10-30 VDC
Input current	≤ 1 mA @ 24 VDC	≤ 1 mA @ 24 VDC	≤ 1 mA @ 24 VDC
On-delay	≤ 2 ms	≤ 2 ms	≤ 2 ms
Intrinsic Safety Parameters	See page K13	See page K13	See page K13
Output Circuit			
Output voltage	16 VDC	18 VDC	18 VDC
Output current	57.5 mA	22 mA	65 mA
Output characteristics			
Switching frequency			
- via control circuit	≤ 250 Hz	≤ 250 Hz	≤ 250 Hz
- via supply voltage	≤ 8 Hz	≤ 8 Hz	≤ 8 Hz
LED Indications			
Power "On"	green	green	green
Output energized	yellow	yellow	yellow
Housing Style	Diagram B (page A17)	Diagram B (page A17)	Diagram B (page A17)

Solenoid Driver MK72-S...-Ex/24VDC (19,20,21,22)

Type	MK72-S19-Ex/24VDC	MK72-S20-Ex/24VDC	MK72-S21-Ex/24VDC	MK72-S22-Ex/24VDC
ID Number	M7507339	M7507340	M7507341	M7507342
Power Supply				
Supply voltage	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple	19-29 VDC, ≤10% ripple
Current consumption	approx. 85 mA	approx. 80 mA	approx. 65 mA	approx. 80 mA
Galvanic isolation	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms	between input, output and supply circuit, test voltage 2.5 kVrms
Input Circuit				
“OFF” signal	≤5 V	≤5 V	≤5 V	≤5 V
“ON” signal	10-30 VDC	10-30 VDC	10-30 VDC	10-30 VDC
Input current	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC	≤1 mA @ 24 VDC
On-delay	≤2 ms	≤2 ms	≤2 ms	≤2 ms
Intrinsic Safety Parameters	See page K12	See page K12	See page K12	See page K12
Output Circuit				
Output voltage	24 VDC	24 VDC	26 VDC	26 VDC
Output current	42.5 mA	40 mA	32 mA	37.5 mA
Output characteristics				
Switching frequency				
- via control circuit	≤250 Hz	≤250 Hz	≤250 Hz	≤250 Hz
- via supply voltage	≤8 Hz	≤8 Hz	≤8 Hz	≤8 Hz
LED Indications				
Power “On”	green	green	green	green
Output energized	yellow	yellow	yellow	yellow
Housing Style	Diagram B (page A17)	Diagram B (page A17)	Diagram B (page A17)	Diagram B (page A17)