

# YR-LINE

## DISCOVER A NEW WORLD

### MORE POWER... SLIM SIZE!

BM1R  
BM2R  
BL1R  
BL2R  
BA1R  
BA2R



2x8A  
DOUBLE  
OUTPUT

16A  
SINGLE  
OUTPUT

 **CROUZET**  
CONTROL

A BRAND OF  
**INNOVISTA**  
SENSORS

**SENTRONIC** AG Produkte, Support und Service

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# DISCOVER THE MOST **POWERFUL** TIMERS



## ABOUT **SYR-LINE**

The new specialized range at Crouzet Control, aimed to satisfy the most unique requirements of your applications by innovating in design, engineering and development.

Meet the first member of the Syr-Line range:

**The 17.5 mm Analog Timers**, a new family of 6 timers with higher power of 16 A and double output of 8 A, with all the classic functions and 2 additional special functions.

## HIGH POWER 1 x 16 A

### CONTROL MORE OR BIGGER LOADS

Forget about having a combination of Timer and Contactor to control bigger loads or a larger number of loads, Syr-Line are your all-in-one solution..

### EXTRA PROTECTION WHEN YOU NEED IT

Syr-Line products have greater capacity to withstand surge or inrush current than standard timers due to higher current capacity.

### SPECIAL FUNCTIONS:

#### LATCHING AND DELAYED LATCHING

Along with the classic functions, Syr-Line offers the special functions Latching (Alternating) (TL) and Delayed Latching (Alternating) (Tt), allowing you to turn on and off the output relay with a voltage signal.

## WIDE TIME RANGE

Program your timer to work from as little as 0.5 seconds delay to as long as a 10-day delay (240 hours).

## DOUBLE OUTPUT 2 x 8 A

### INSTANTANEOUS OR TIMED RELAY IN A SLIM PACKAGE

The only 17.5 mm timer on the market offering a dual output version with easy selection on the front face, allowing the option of both outputs to work together simultaneously, or one working instantaneously and the other delayed.

#### OPTION 1: INSTANTANEOUS

Turn on one output instantaneously and the second output with a time delay, to allow different loads to be switched-on gradually.

#### OPTION 2: TIMED

Select the two output relays working together and reduce costs by controlling different loads with the same device.

## MONO OR MULTI FUNCTION

Select between a multifunction version with the 12 most popular functions or a monofunction version ON-Delay or Repeat-Cycle.

## INTERNATIONAL CERTIFICATIONS

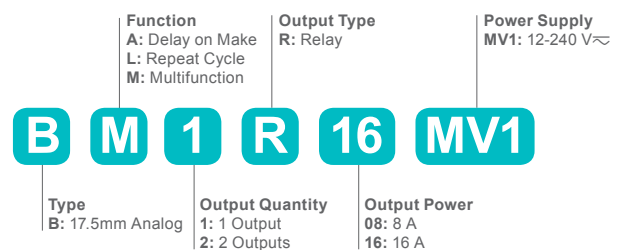
Compliant with the highest standards, Syr-Line 17.5 mm timers are cULus, CE, RoHS and CCC certified.

## ENGINEERING EXPERTISE FOR CUSTOM NEEDS

Crouzet can easily customize Syr-Line timers for your specific application.



### › Part Number System



# PRODUCT LAYOUT

## PROTECTIVE COVER

- › Protect the knobs and the front face from the environment and avoid accidental movement

## UNIVERSAL POWER SUPPLY

- › Syr-line timers fits all popular voltages from 12 → 240 V $\overline{\sim}$
- › Connexion compatible with the standard industrial layout

## MODULAR SHAPE

- › To fit in modular panels

## SIGNAL INPUT

- › For functions when controlling the timer with a signal is needed

## SMALL SCREW POTENTIOMETERS

- › For right tuning of your timer

## DIN RAIL MOUNT

- › For easy installation in your panel

## LARGE POTENTIOMETERS

- › Allows to set the right configuration in your timer with your fingers

## SLIM PACKAGE

- › 17.5 mm width plastic housing that helps you save space in your panel

## FUNCTIONS MARKING

- › With all the function diagrams available for each part number

## 2 LED INDICATORS

- › For visualization of the status and output of your timer

## SPECIAL FUNCTION

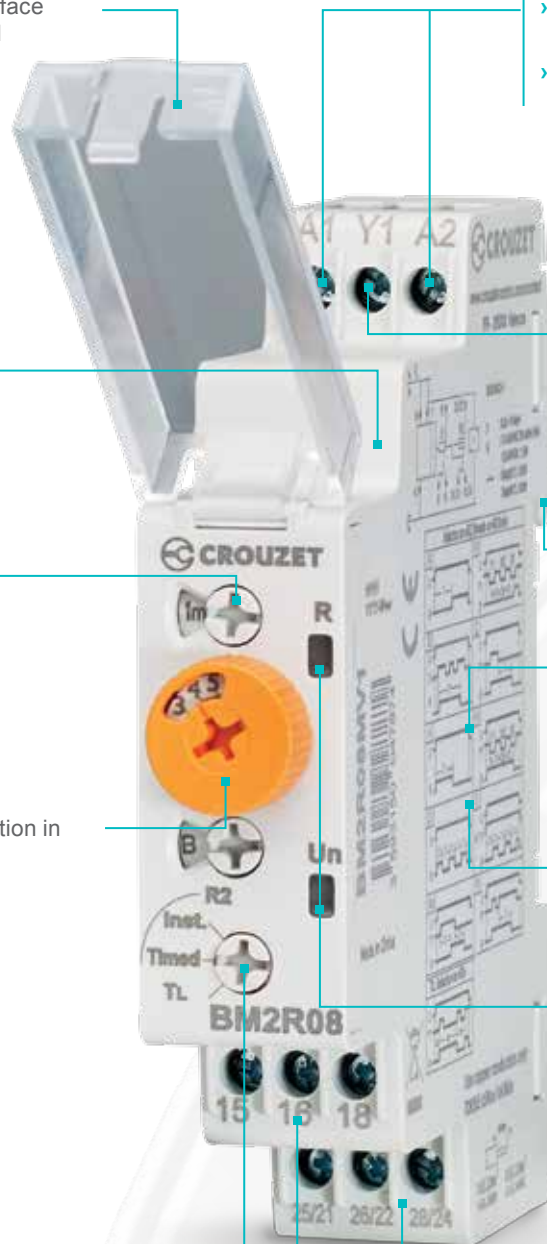
- › To select special functions Latching (Alternating) and Delayed Latching (Alternating) or select in double output versions if second relay works timed or instantaneous

## HIGH POWER 1 x 16 A

- › Relay output version for high power applications

## DOUBLE 2 x 8 A

- › Relay output version available for standard power applications that requires two relays



# PRODUCT FUNCTIONS

	BM1R	BM2R	BA1R	BA2R	BL1R	BL2R		BM1R	BM2R	BA1R	BA2R	BL1R	BL2R
<b>A</b>  ON-Delay (Delay on Make)	✓	✓	✓	✓			<b>H</b>  Interval	✓	✓				
<b>Ac</b>  ON/OFF Delay (Delay on Make/Break)	✓	✓					<b>Ht</b>  Interval with Memory	✓	✓				
<b>At</b>  Summation Time	✓	✓	✓	✓			<b>N</b>  Watchdog	✓	✓				
<b>B</b>  Single Shot (One Shot)	✓	✓					<b>TL</b>  Latching (Alternating) – Leading Edge	✓	✓				
<b>C</b>  OFF-Delay (Delay on Break)	✓	✓					<b>Tt</b>  Delayed Latching (Alternating) – Leading Edge	✓					
<b>D</b>  Flasher (Symmetrical) – OFF Start	✓	✓					<b>L</b>  Repeat Cycle (Asymmetrical) – OFF Start					✓	✓
<b>Di</b>  Flasher (Symmetrical) – ON Start	✓	✓					<b>Li</b>  Repeat Cycle (Asymmetrical) – ON Start					✓	✓

U: Power Supply (A1/A2)  
 Y1: Trigger Signal (A1/Y1)  
 R1/R2: Relays Outputs Timed → R1 (15/16/18) → R2 (25/26/28)

R2: Relay Output Instantaneous (21/22/24)  
 T: Timing  
 ∞: Infinity



# PRODUCT OFFER

BM1R		BM2R		BA1R		BA2R		BL1R		BL2R	
<b>BM1R16MV1</b>		<b>BM2R08MV1</b>		<b>BA1R16MV1</b>		<b>BA2R08MV1</b>		<b>BL1R16MV1</b>		<b>BL2R08MV1</b>	
	1 X 16 A		2 X 8 A		1 X 16 A		2 X 8 A		1 X 16 A		2 X 8 A
	12-240 V $\sim$		12-240 V $\sim$		12-240 V $\sim$		12-240 V $\sim$		12-240 V $\sim$		12-240 V $\sim$
	Multifunction		Multifunction		Delay on Make A: ON-Delay At: + Memory		Delay on Make A: ON-Delay At: + Memory		Repeat Cycle L: OFF Start Li: ON Start		Repeat Cycle L: OFF Start Li: ON Start
	R1: Timed		R1: Timed R2: Timed/ Instantaneous		R1: Timed		R1/R2: Timed		R1: Timed		R1/R2: Timed

# PRODUCT MARKET

## ENERGY & INFRASTRUCTURE

- › Water & Waste Treatment
- › Water Filtration
- › Water Disinfection
- › Compactors

## FOOD & BEVERAGE

- › Baking Ovens
- › Refrigeration
- › Food & Drink Dispensers
- › Food Processing

## TRANSPORTATION

- › Trucks and Buses
- › Specialty Vehicles
- › Construction Equipment

## INDUSTRIAL

- › Assembly Machines
- › Machine Tools
- › Materials Handling
- › Metal Process
- › Motors and Drives
- › Packaging Equipment
- › Plastic Machinery
- › Test Equipment
- › Textile Manufacturing
- › Wood Process
- › Others

## COMMERCIAL

- › Printing & Other

## BUILDING

- › Access Control
- › Parking Barrier
- › Door Control
- › HVAC
- › Air
- › Filtration
- › Lighting
- › Building Automation



# BA1R

## Timers

### Syrline

#### 17.5 mm - 1 Relay 16A

- › Multi-function or mono-function
- › Multi-range (12 function)
- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator (relay version)
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

Specifications						
Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
A-At	0,1 s →10 days	1 changeover relay	16 A	Screw terminals	12 →240 V $\sim$ / $\overline{\sim}$	BA1R16MV1
Output relay						
Contact arrangement			1 CO (SPDT) (Changeover -Single Pole Double Throw-)			
Maximum switching voltage			250 VAC/ 16 A resistive / 250 VDC / 0.3 A resistive			
Switching current rate (resistive)			NO / NC: 16 A 250 V AC / 16 A 30 VDC @ 25°C NO / NC: 8 A 250 V AC / 8 A 30 VDC @ 60°C			
Minimum switching contact			10 mA / 5 VDC			
Maximum switching power (resistive)			4000 VA / 90 W @ 25°C			
Electrical life			30x10 <sup>3</sup> cycles (NO) at 250 VAC/ 16 A resistive			
Maximum rate (at max switching power)			360 cycles /hour			
Mechanical life			30 x 10 <sup>6</sup> cycles			
Rated impulse voltage			5 kV (1.2/50 $\mu$ s)			
Dielectric strength between coil / contacts			IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz			
Dielectric strength between open contacts			1 kV /1 min / 1 mA / 50 Hz			
Timing						
Timing ranges (7 ranges)			0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days			
Minimum pulse duration typically (relay version)			IEC 1812-1: 30 ms / 100 ms with load			
Maximum reset time by de-energisation typically (relay version)			IEC 1812-1: 120 ms			
Repeatability			IEC 1812-1: $\leq \pm 0,5\%$			
Repetition accuracy with constant parameters			IEC 1812-1: $\leq \pm 10\%$			
Drift Temperature			$\leq \pm 0.05\%$ / °C			
Voltage-dependent drift			$\leq \pm 0.2\%$ / V			
Supply						
Multi-voltage power supply			12→240 V $\sim$ / $\overline{\sim}$			
Operating range			15%, +10%			
Operating frequency (Hz)			50 / 60 Hz $\pm 5\%$			
Galvanic isolation			No			
Max. absorbed power			Approx. 3 VA (V $\sim$ ) 1.5 W (V $\overline{\sim}$ )			
Immunity from micro power cuts			10 ms			



General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overtoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 $\mu$ s)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93 050: > 500 M $\Omega$ / 250 V $_{rms}$ / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 $\rightarrow$ 3.3 mm <sup>2</sup> (AWG 20 $\rightarrow$ AWG 12) 2 x 0.5 $\rightarrow$ 1.5 mm <sup>2</sup> (AWG 20 $\rightarrow$ AWG 16)
Max. tightening torque (Nm)	IEC 60947-1 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2 -20 °C $\rightarrow$ +60 °C
Storage temperature range (°C)	IEC 60068-2 -40 °C $\rightarrow$ +70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % without condensation
Vibration resistance according to IEC/EN 60068-2-6	$\pm$ 0.15 mm from 10 Hz $\rightarrow$ 60 Hz 2g from 60 Hz $\rightarrow$ 150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32: igh: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air $\pm$ 8 kV / Contact $\pm$ 6 kV
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80 % AM (1 k Hz) 3 V/m (1,4 $\rightarrow$ 2 G Hz) 80 % AM (1K Hz) 1V/m (2 $\rightarrow$ 2.7 G Hz) 80 % AM (1K Hz)
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct $\pm$ 2 kV (power supply) / capacitive coupling clamp $\pm$ 1 kV (command input and outputs)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth $\pm$ 2 kV / line-to-line $\pm$ 1kV

General characteristics	
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 →80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)

Dimensions	

Curves	
Function A Delay on energisation 1 relay	
Function At Timing on Energisation with memory	<p style="text-align: center;"><math>T = t1 + t2</math></p>

Connections	
1 changeover relay output	



# BA2R

## Timers

### Syrline

#### 17.5 mm - 2 Relays 8A

- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator (relay version)
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

Specifications						
Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
A-At	0,1 s →10 days	2 changeover relays	2 x 8A	Screw terminals	12 →240 V $\sim$ / $\overline{\text{=}}$	BA2R08MV1
Output relay						
Contact arrangement	2 CO (SPDT) (Changeover -Single Pole Double Throw-) R1: Follow timing function R2: Follow timing function					
Maximum switching voltage	250 VAC/ 8 A resistive / 250 VDC / 0.3 A resistive					
Switching current rate (resistive)	NO / NC : 8A 250 V AC / 8 A 30 VDC @ 25°C NO / NC : 5A 250 V AC / 5 A 30 VDC @ 60°C					
Minimum switching contact	10 mA / 5 VDC					
Maximum switching power (resistive)	2000 VA / 80 W @ 25°C					
Electrical life	10 <sup>5</sup> cycles min at 250 VAC/ 8 A resistive					
Maximum rate (at max switching power)	360 cycles /hour					
Mechanical life	10 x 10 <sup>6</sup> cycles					
Rated impulse voltage	5 kV (1.2/50 $\mu$ s)					
Dielectric strength between coil / contacts	IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz					
Dielectric strength between open contacts	2.5 kV /1 min / 1 mA / 50 Hz					
Timing						
Timing ranges (7 ranges)	0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days					
Minimum pulse duration typically (relay version)	IEC 1812-1: 30 ms / 100 ms with load					
Maximum reset time by de-energisation typically (relay version)	IEC 1812-1: 120 ms					
Repeatability	IEC 1812-1: $\leq \pm 0,5\%$					
Repetition accuracy with constant parameters	IEC 1812-1: $\leq \pm 10\%$					
Drift Temperature	$\leq \pm 0.05\%$ / °C					
Voltage-dependent drift	$\leq \pm 0.2\%$ / V					
Supply						
Multi-voltage power supply	12→240 V $\sim$ / $\overline{\text{=}}$					
Operating range	15%, +10%					
Operating frequency (Hz)	50 / 60 Hz $\pm 5\%$					
Galvanic isolation	No					



Supply	
Max. absorbed power	Approx. 3 VA (V~) 1.5 W (V <sup>---</sup> )
Immunity from micro power cuts	10 ms
General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overvoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 µs)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93 050: > 500 MΩ / 250 V <sup>---</sup> / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 → 3.3 mm <sup>2</sup> (AWG 20 → AWG 12) 2 x 0.5 → 1.5 mm <sup>2</sup> (AWG 20 → AWG 16)
Max. tightening torque (Nm)	IEC 60947-1 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2 -20 °C → +60 °C
Storage temperature range (°C)	IEC 60068-2 -40 °C → +70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93% without condensation
Vibration resistance according to IEC/EN 60068-2-6	± 0.15 mm from 10 Hz → 60 Hz 2g from 60 Hz → 150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32: igh: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air ± 8 KV / Contact ± 6 KV
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80% AM (1 k Hz) 3 V/m (1,4 → 2 G Hz) 80% AM (1K Hz) 1V/m (2 → 2.7 G Hz) 80% AM (1K Hz)

General characteristics	
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct $\pm 2$ kV (power supply) / capacitive coupling clamp $\pm 1$ kV (command input and outputs)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth $\pm 2$ kV / line-to-line $\pm 1$ kV
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 → 80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)

Dimensions	

Curves	
Function A Delay on energisation 1 relay	
Function At Timing on Energisation with memory	

Connections	
1 changeover relay output	

# BL1R

## Timers

### Syrline

#### 17.5 mm - 1 Relay 16A

- › Multi-function or mono-function
- › Multi-range (12 function)
- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator (relay version)
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

Specifications						
Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
L - Li	0,1 s →10 days	1 changeover relay	16 A	Screw terminals	12 →240 V $\sim$ / $\overline{\text{DC}}$	BL1R16MV1

Output relay	
Contact arrangement	1 CO (SPDT) (Changeover -Single Pole Double Throw-)
Maximum switching voltage	250 VAC/ 16 A resistive / 250 VDC / 0.3 A resistive
Switching current rate (resistive)	NO / NC: 16 A 250 V AC / 16 A 30 VDC @ 25°C NO / NC: 8 A 250 V AC / 8 A 30 VDC @ 60°C
Minimum switching contact	10 mA / 5 VDC
Maximum switching power (resistive)	4000 VA / 90 W @ 25°C
Electrical life	30x10 <sup>3</sup> cycles (NO) at 250 VAC/ 16 A resistive
Maximum rate (at max switching power)	360 cycles /hour
Mechanical life	30 x 10 <sup>6</sup> cycles
Rated impulse voltage	5 kV (1.2/50 $\mu$ s)
Dielectric strength between coil / contacts	IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz
Dielectric strength between open contacts	1 kV /1 min / 1 mA / 50 Hz

Timing	
Timing ranges (7 ranges)	0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days
Minimum pulse duration typically (relay version)	IEC 1812-1: 30 ms / 100 ms with load
Maximum reset time by de-energisation typically (relay version)	IEC 1812-1: 120 ms
Repeatability	IEC 1812-1: $\leq \pm 0,5\%$
Repetition accuracy with constant parameters	IEC 1812-1: $\leq \pm 10\%$
Drift Temperature	$\leq \pm 0.05\%$ / °C
Voltage-dependent drift	$\leq \pm 0.2\%$ / V

Supply	
Multi-voltage power supply	12→240 V $\sim$ / $\overline{\text{DC}}$
Operating range	15%, +10%
Operating frequency (Hz)	50 / 60 Hz $\pm 5\%$



Supply	
Galvanic isolation	No
Max. absorbed power	Approx. 3 VA (V~) 1.5 W (V=)
Immunity from micro power cuts	10 ms
General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overvoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 µs)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93050: > 500 MΩ / 250 V= / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 → 3.3 mm <sup>2</sup> (AWG 20 → AWG 12) 2 x 0.5 → 1.5 mm <sup>2</sup> (AWG 20 → AWG 16)
Max. tightening torque (Nm)	IEC 60947-1 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2: -20 °C → +60 °C
Storage temperature range (°C)	IEC 60068-2: -40 °C → +70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % without condensation
Vibration resistance according to IEC/EN 60068-2-6	± 0.15 mm from 10 Hz → 60 Hz 2g from 60 Hz → 150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32 High: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air ± 8 kV / Contact ± 6 kV
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80% AM (1 k Hz) 3 V/m (1,4 → 2 G Hz) 80% AM (1K Hz) 1V/m (2 → 2.7 G Hz) 80% AM (1K Hz)



General characteristics	
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct $\pm 2$ kV (power supply) / capacitive coupling clamp $\pm 1$ kV (command input and outputs)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth $\pm 2$ kV / line-to-line $\pm 1$ kV
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 → 80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)

Dimensions	

Curves	
Function L Asymmetrical timing, off start	
Function Li Asymmetrical timing, pulse start	

Connections	
1 changeover relay output A1 = Y1 for function L	

# BL2R

## Timers

### Syrline

#### 17.5 mm - 2 Relays 8A

- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

#### Specifications

Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
L - Li	0,1 s →10 days	2 changeover relays	8 A	Screw terminals	12 →240 V $\sim$ / $\overline{\sim}$	BL2R08MV1

#### Output relay

Contact arrangement	2 CO (SPDT) (Changeover -Single Pole Double Throw-)  R1: Follow timing function R2: Follow timing function
Maximum switching voltage	250 VAC / 8 A resistive / 250 VDC / 0.3 A resistive
Switching current rate (resistive)	NO / NC : 8A 250 V AC / 8 A 30 VDC @ 25°C NO / NC : 5A 250 V AC / 5 A 30 VDC @ 60°C
Minimum switching contact	10 mA / 5 VDC
Maximum switching power (resistive)	2000 VA / 80 W @ 25°C
Electrical life	10 <sup>5</sup> cycles min at 250 VAC/ 8 A resistive
Maximum rate (at max switching power)	360 cycles /hour
Mechanical life	10 x 10 <sup>6</sup> cycles
Rated impulse voltage	5 kV (1.2/50µs)
Dielectric strength between coil / contacts	IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz
Dielectric strength between open contacts	2,5 kV /1 min / 1 mA / 50 Hz

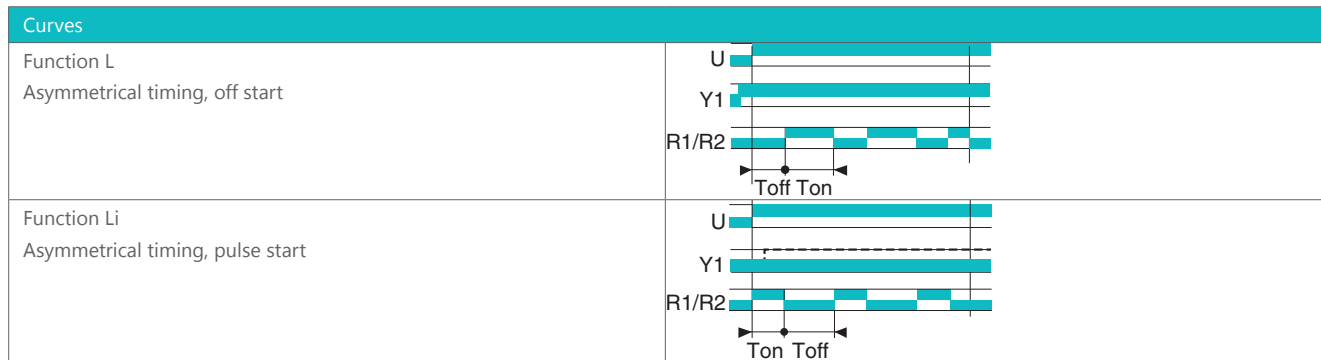
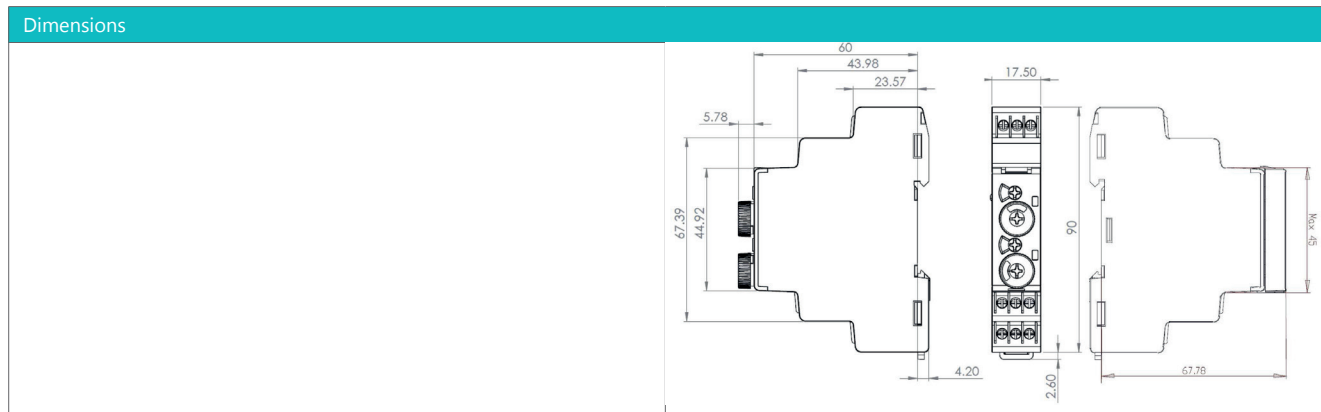
#### Timing

Timing ranges (7 ranges)	0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days
Minimum pulse duration typically (relay version)	IEC 1812-1: 30 ms / 100 ms with load
Maximum reset time by de-energisation typically (relay version)	IEC 1812-1: 120 ms
Repeatability	IEC 1812-1: $\leq \pm 0,5 \%$
Repetition accuracy with constant parameters	IEC 1812-1: $\leq \pm 10 \%$
Drift Temperature	$\leq \pm 0.05 \%$ / °C
Voltage-dependent drift	$\leq \pm 0.2 \%$ / V



Supply	
Multi-voltage power supply	12→240 V $\sqrt{\text{---}}$
Operating range	15 %, +10 %
Operating frequency (Hz)	50 / 60 Hz $\pm$ 5 %
Galvanic isolation	No
Max. absorbed power	Approx. 3 VA (V $\sqrt{\text{---}}$ ) 1.5 W (V $\text{---}$ )
Immunity from micro power cuts	10 ms
General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overvoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 $\mu$ s)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93 050: > 500 M $\Omega$ / 250 V $\text{---}$ / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 →3.3 mm <sup>2</sup> (AWG 20 →AWG 12) 2 x 0.5 →1.5 mm <sup>2</sup> (AWG 20 →AWG 16)
Max. tightening torque (Nm)	IEC 60947-1 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2: -20 °C →+60 °C
Storage temperature range (°C)	IEC 60068-2: -40 °C →+70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % without condensation
Vibration resistance according to IEC/EN 60068-2-6	$\pm$ 0.15 mm from 10 Hz →60 Hz 2g from 60 Hz →150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32 High: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air $\pm$ 8 kV / Contact $\pm$ 6 kV

General characteristics	
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80% AM (1 k Hz) 3 V/m (1,4 →2 G Hz) 80% AM (1K Hz) 1V/m (2 →2.7 G Hz) 80% AM (1K Hz)
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct ± 2 kV (power supply) / capacitive coupling clamp ± 1 kV (command input and outputs)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth ± 2 kV / line-to-line ± 1kV
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 →80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)



# BM1R

## Timers

### Syrline

#### 17.5 mm - 1 Relay 16A

- › Multi-function or mono-function
- › Multi-range (12 function)
- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator (relay version)
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

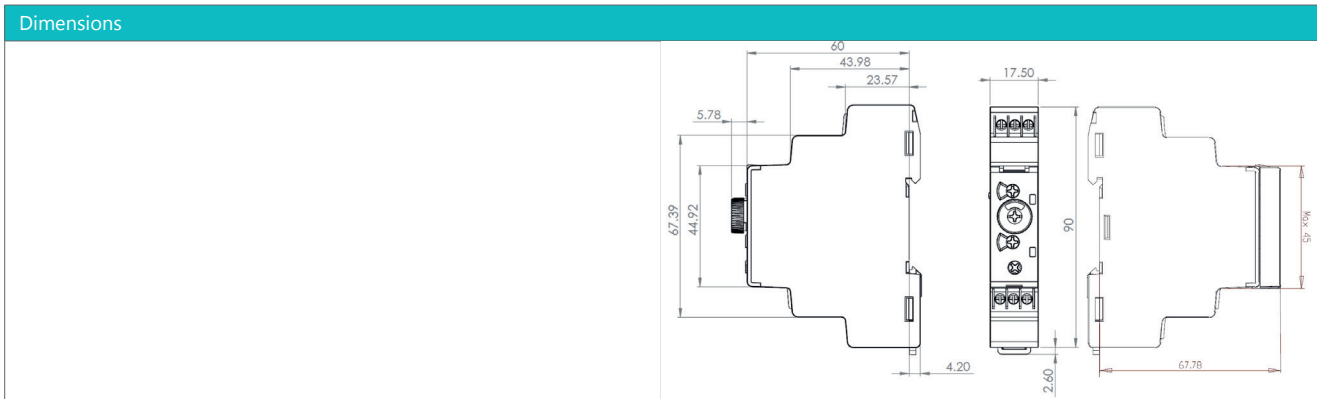
Specifications						
Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
A - Ac - At - B - C - D - Di - H - Ht - N - TL - Tt	0,5 s →10 days	1 changeover relay	16 A	Screw terminals	12 →240 V ~/∞	BM1R16MV1
Output relay						
Contact arrangement	1 CO (SPDT) (Changeover -Single Pole Double Throw-)					
Maximum switching voltage	250 VAC/ 16 A resistive / 250 VDC / 0.3 A resistive					
Switching current rate (resistive)	NO / NC: 16 A 250 V AC / 16 A 30 VDC @ 25°C NO / NC: 8 A 250 V AC / 8 A 30 VDC @ 60°C					
Minimum switching contact	10 mA / 5 VDC					
Maximum switching power (resistive)	4000 VA / 90 W @ 25°C					
Electrical life	30x10 <sup>3</sup> cycles (NO) at 250 VAC/ 16 A resistive					
Maximum rate (at max switching power)	360 cycles /hour					
Mechanical life	30 x 10 <sup>6</sup> cycles					
Rated impulse voltage	5 kV (1.2/50µs)					
Dielectric strength between coil / contacts	IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz					
Dielectric strength between open contacts	1 kV /1 min / 1 mA / 50 Hz					
Timing						
Timing ranges (7 ranges)	0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days					
Minimum pulse duration typically (relay version)	IEC 1812-1: 30 ms / 100 ms with load					
Maximum reset time by de-energisation typically (relay version)	IEC 1812-1: 120 ms					
Repeatability	IEC 1812-1: ≤ ± 0,5%					
Repetition accuracy with constant parameters	IEC 1812-1: ≤ ± 10%					
Drift Temperature	≤ ± 0.05% / °C					
Voltage-dependent drift	≤ ± 0.2% / V					
Supply						
Multi-voltage power supply	12→240 V ~/∞					
Operating range	15%, +10%					
Operating frequency (Hz)	50 / 60 Hz ± 5%					





Supply	
Galvanic isolation	No
Max. absorbed power	Approx. 3 VA (V~) 1.5 W (V $\overline{\text{---}}$ )
Immunity from micro power cuts	10 ms
General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overvoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 $\mu$ s)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93050: > 500 M $\Omega$ / 250 V $\overline{\text{---}}$ / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 $\rightarrow$ 3.3 mm <sup>2</sup> (AWG 20 $\rightarrow$ AWG 12) 2 x 0.5 $\rightarrow$ 1.5 mm <sup>2</sup> (AWG 20 $\rightarrow$ AWG 16)
Max. tightening torque (Nm)	IEC 60947-1: 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2: -20 °C $\rightarrow$ +60 °C
Storage temperature range (°C)	IEC 60068-2: -40 °C $\rightarrow$ +70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % without condensation
Vibration resistance according to IEC/EN 60068-2-6	$\pm$ 0.15 mm from 10 Hz $\rightarrow$ 60 Hz 2g from 60 Hz $\rightarrow$ 150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32 High: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air $\pm$ 8 kV / Contact $\pm$ 6 kV
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80% AM (1 k Hz) 3 V/m (1,4 $\rightarrow$ 2 G Hz) 80% AM (1K Hz) 1V/m (2 $\rightarrow$ 2.7 G Hz) 80% AM (1K Hz)
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct $\pm$ 2 kV (power supply) / capacitive coupling clamp $\pm$ 1 kV (command input and outputs)

General characteristics	
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth $\pm 2$ kV / line-to-line $\pm 1$ kV
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 $\rightarrow$ 80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)



Curves

Function A Delay on energisation 1 relay	
Function Ac Timing after closing and opening of control contact 1 relay	
Function At Timing on energisation with memory 1 relay	
Function B Timing on impulse one shot 1 relay	
Function C Timing after impulse 1 relay	
Function D Flip-flop Pause start 1 relay	
Function Di Flip-flop Pulse start 1 relay	
Function H Timing on energisation 1 relay	

Curves	
Function Ht Delay on energisation with memory 1 relay	
Function N Watchdog	
Function TI Timed impulse relay	
Function TL Impulse relay	

Connections	
1 changeover relay output	

# BM2R

## Timers

### Syrline

#### 17.5 mm - 2 Relay 8A

- › Multi-function or mono-function
- › Multi-range (12 function)
- › Multi-voltage 12 →240 V AC/DC
- › LED status indicator (relay version)
- › Possibility of external load connection in parallel to the control input
- › 3-wire PNP sensor compatible



**SYR-LINE**

Specifications						
Functions	Delay	Output	Nominal rating	Connections	Supply voltage	Code
A - Ac - At - B - C - D - Di - H - Ht - N - TL - Tt	0,5 s →10 days	2 changeover relays	2 x 8 A	Screw terminals	12 →240 V ~/∞	BM2R08MV1

Output relay	
Contact arrangement	2 CO (SPDT) (Changeover -Single Pole Double Throw-) R1: Follow timing function R2: Follow timing function / Instantaneous
Maximum switching voltage	250 VAC / 8 A resistive / 250 VDC / 0.3 A resistive
Switching current rate (resistive)	NO / NC : 8A 250 V AC / 8 A 30 VDC @ 25°C NO / NC : 5A 250 V AC / 5 A 30 VDC @ 60°C
Minimum switching contact	10 mA / 5 VDC
Maximum switching power (resistive)	2000 VA / 80 W @ 25°C
Electrical life	10 <sup>5</sup> cycles min at 250 VAC/ 8 A resistive
Maximum rate (at max switching power)	360 cycles /hour
Mechanical life	10 x 10 <sup>6</sup> cycles
Rated impulse voltage	5 kV (1.2/50µs)
Dielectric strength between coil / contacts	IEC 60664-1: 5 kV /1 min / 1 mA / 50 Hz
Dielectric strength between open contacts	2.5 kV /1 min / 1 mA / 50 Hz

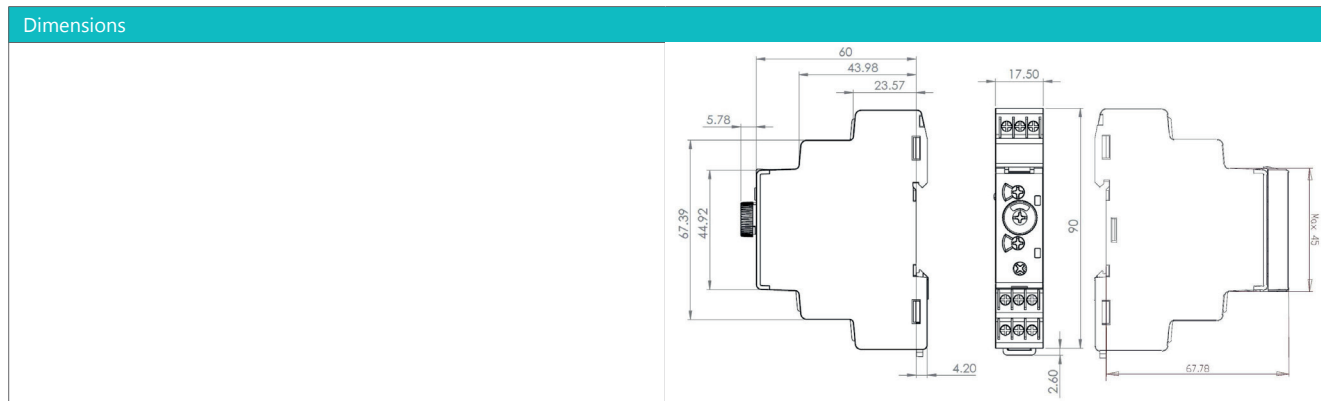
Timing	
Timing ranges (7 ranges)	0.5→10s, 0.05→1min, 0.5→10min, 0.05→1h, 0.5→10h, 0.05→1day, 0.5→10days
Minimum pulse duration typically (relay version)	IEC 1812-1: 30 ms 100 ms with load
Maximum reset time by de-energisation typically (relay version)	IEC 1812-1: 120 ms
Repeatability	IEC 1812-1: ≤ ± 0,5 %
Repetition accuracy with constant parameters	IEC 1812-1: ≤ ± 10 %
Drift Temperature	≤ ± 0.05 % / °C
Voltage-dependent drift	≤ ± 0.2 % / V



Supply	
Multi-voltage power supply	12→240 V <sub>~</sub> /V <sub>DC</sub>
Operating range	15 %, +10 %
Operating frequency (Hz)	50 / 60 Hz ± 5 %
Galvanic isolation	No
Max. absorbed power	Approx. 3 VA (V <sub>~</sub> ) 1.5 W (V <sub>DC</sub> )
Immunity from micro power cuts	10 ms
General characteristics	
Insulation voltage, IEC 60664-1	300 V
Installation category (acc. to IEC/EN 60664-1)	Overvoltage category III; pollution degree 2
Impulse voltage CEI/EN 60664-1	4 kV (1,2 / 50 µs)
Clearance / Creepage distances	IEC 60664-1: 3 mm / 3.2 mm
Breakdown voltage	EN-61812-1: 2,5 kV / 1 min / 1 mA / 50 Hz
Insulation resistance	NFC 93 050: > 500 MΩ / 250 V <sub>DC</sub> / 1min
Status indication	Un: green LED blinks when count, continuous ON when supplied R: yellow LED continuous ON when the relay is ON
Casing	DIN 43880: 17,5 mm
Fixing: Symmetrical DIN rail	EN 50022: 35 mm
Mounting position	All positions
Housing material	Enclosure plastic type UL94 - V0
Protection (IEC/EN 60529)	Housing: IP40 / Terminal block: IP20
Terminal capacity Single-wire without ferrule	IEC 60947-1 1 x 0.5 → 3.3 mm <sup>2</sup> (AWG 20 → AWG 12) 2 x 0.5 → 1.5 mm <sup>2</sup> (AWG 20 → AWG 16)
Max. tightening torque (Nm)	IEC 60947-1: 0,5 N.m / 4,4 lbf.in
Operating temperature range (°C)	IEC 60068-2: -20 °C → +60 °C
Storage temperature range (°C)	IEC 60068-2: -40 °C → +70 °C
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % without condensation
Vibration resistance according to IEC/EN 60068-2-6	± 0.15 mm from 10 Hz → 60 Hz 2g from 60 Hz → 150 Hz
Impact resistance	IEC 60068-2-27 15gn - 11ms; 3 x 6 axis (output OFF) 5gn - 11ms; 3 x 6 axis (Output ON)
Drop to concrete floor	IEC 60068-2-32 High: 0.75m
Weight: casing 17,5 mm	70 g 80 g with packaging
Directives	2014/30/EU: EMC 2014/35/EU: low voltage
Certifications	CE - cULus Listed Industrial Control Equipment - CCC
Conformity to standards	CEI 60664-1: Insulation coordination for equipment within low-voltage systems CEI 61812-1/ Specified time relays for industrial use UL 60947-4-1/ Industrial Control Equipment (NRNT- Industrial Control Switches)
Conformity with environmental directives	2015/863/UE: RoHS 1907/2006: Reach 2012/19/UE: WEEE
Electromagnetic compatibility IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4	Immunity for industrial environment Emission residential environment Emission industrial environment
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III Air ± 8 kV / Contact ± 6 kV



General characteristics	
Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3	Level III 10 V/m (80 M Hz to 1 G Hz) 80% AM (1 k Hz) 3 V/m (1,4 →2 G Hz) 80% AM (1K Hz) 1V/m (2 →2.7 G Hz) 80% AM (1K Hz)
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III direct ± 2 kV (power supply) / capacitive coupling clamp ± 1 kV (command input and outputs)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III line-to-earth ± 2 kV / line-to-line ± 1kV
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III 10 Vrms (0,15 →80 M Hz) 80% AM (1 k Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	Industrial Class II: 0% residual voltage during 1cycle a.c. power ports 70% residual voltage during 25/30 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports  Residential: 0% residual voltage during 10 cycle a.c.power ports 40% residual voltage during 10 cycles a.c. power ports 70% residual voltage during 10 cycles a.c. power ports 0% residual voltage, 250/300 cycles a.c. power ports
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	EN 55022 / CISPR22 Class B (IT equipment) EN 55011 / CISPR11 Class B, Group 1 (Medical equipment)



Curves	
Function A Delay on energisation R1: Follow timing function R2: Follow timing function / Instantaneous	
Function Ac Timing after closing and opening of control contact R1: Follow timing function R2: Follow timing function / Instantaneous	
Function At Timing on energisation with memory R1: Follow timing function R2: Follow timing function / Instantaneous	
Function B Timing on impulse one shot R1: Follow timing function R2: Follow timing function / Instantaneous	
Function C Timing after impulse R1: Follow timing function R2: Follow timing function / Instantaneous	

Curves	
Function D Flip-flop Pause start R1: Follow timing function R2: Follow timing function / Instantaneous	
Function Di Flip-flop Pulse start R1: Follow timing function R2: Follow timing function / Instantaneous	
Function H Timing on energisation R1: Follow timing function R2: Follow timing function / Instantaneous	
Function Ht Delay on energisation with memory R1: Follow timing function R2: Follow timing function / Instantaneous	
Function N Watchdog R1: Follow timing function R2: Follow timing function / Instantaneous	
Function TL Impulse relay R1: Follow timing function R2: Follow timing function	
Connections	
2 changeover relay output	