

TIMERS MAE, MAN, MAA



Timers – economical

- For real time load switching up to 16 A / 250 V.
- Change-over switch automatic run / permanent operation / permanent off.

Analog MAE-A

- Daily program.
- Switching time setting: by plastic plates along the perimeter of the knob.
- Shortest switching interval 15 min.
- Without run reserve.
- Sealing option.

Digital MAE-D

- Weekly and daily program.
- Switching time setting: by push-buttons on the front panel of the device.
- Shortest switching interval: 1 min.
- Run reserve 3 years, replaceable battery.

| Design | Arrangement of contacts ¹⁾ | Type | Order code | Number of modules | Weight [kg] | Package [pcs] |
|---------|---------------------------------------|------|------------------------------|-------------------|-------------|---------------|
| Analog | mini | 100 | MAE-A16-100-A230-MINI | OEZ:43078 | 1 | 0.082 |
| | standard | 001 | MAE-A16-001-A230 | OEZ:43067 | 3 | 0.153 |
| Digital | 1-channel | 100 | MAE-D16-100-A230-MINI | OEZ:45596 | 1 | 0.091 |
| | 1-channel | 001 | MAE-D16-001-A230 | OEZ:43068 | 2 | 0.139 |
| | 2-channel | 002 | MAE-D16-002-A230 | OEZ:43069 | 2 | 0.161 |

¹⁾ Each digit indicates successively the number of make, break and break-make contacts.

Timers - standard

- For real time load switching up to 16 A / 250 V.
- Change-over switch automatic run / permanent operation / permanent off.

Analog MAN-A

- Daily program.
- Switching time setting: by plastic plates along the perimeter of the knob.
- Shortest switching interval 15 min.
- Run reserve 100 hours.
- Weekly and daily program.
- Sealing option.

Digital MAN-D

- Switching time setting: by push-buttons on the front panel of the device.
- Shortest switching interval: 1 s.
- Run reserve 5 years, replaceable battery.
- Selection of one of 15 languages including Czech.

| Design | Arrangement of contacts ¹⁾ | Type | Order code | Number of modules | Weight [kg] | Package [pcs] |
|---------|---------------------------------------|------|------------------------------|-------------------|-------------|---------------|
| Analog | mini | 100 | MAN-A16-100-A230-MINI | OEZ:43070 | 1 | 0.085 |
| | standard | 001 | MAN-A16-001-A230 | OEZ:43071 | 3 | 0.155 |
| Digital | 1-channel | 001 | MAN-D16-001-A230 | OEZ:43072 | 2 | 0.173 |
| | 2-channel | 002 | MAN-D16-002-A230 | OEZ:43073 | 2 | 0.197 |

¹⁾ Each digit indicates successively the number of make, break and break-make contacts.

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MAA-D16-001-A230

Timers Astro

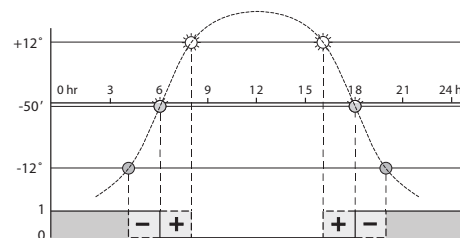
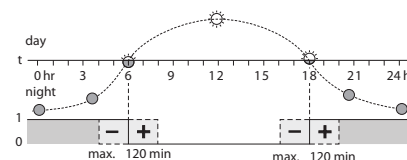
- For real time load switching up to 16 A / 250 V.
- Digital - Astro.
- Weekly and daily program.
- Switching time setting: by push-buttons on the front panel of the device.
- Switching on and off at sunrise/sunset.
- Combination of Astro function with switching according to internal clock.
- Shortest switching interval: 1 s.
- Change-over switch automatic run / permanent operation / permanent off.
- Run reserve 5 years, replaceable battery.
- Selection of one of 15 languages including Czech.
- Possible control by control input (only MAA-D16-001-A230).

| Design | Arrangement of contacts ¹⁾ | Type | Order code | Number of modules | Weight [kg] | Package [pcs] |
|---------|---------------------------------------|------|------------------|-------------------|-------------|---------------|
| Digital | 1-channel | 001 | MAA-D16-001-A230 | OEZ:43074 | 2 | 0.173 |
| | 2-channel | 002 | MAA-D16-002-A230 | OEZ:43075 | 2 | 0.197 |

¹⁾ Each digit indicates successively the number of make, break and break-make contacts.

Setting the switching time

- Timer Astro makes it possible to shift the switching on/off time by means of time correction by up to 120 minutes. The contact switching is shifted against the sunset/sunrise by a set time. Time correction does not take into account the different length of twilight in the summer and winter.
- Timer Astro makes it possible to shift the switching on/off time by means of angular correction by up to 12 minutes. The contact switching is shifted against the sunset/sunrise depending on the sun position to the horizon. Angular correction eliminates different length of twilight in the summer and winter. Angular correction enables switching at the same brightness throughout the year.



Control input S

- In course of the control signal the output is ON irrespective of programs.
- It is possible to set decay time. The output is closed for a set time (0 ÷ 23:59:59) even after the end of the control signal.

Example of switching of shop-window lighting

- Switching of shop-window lighting, the setting, for example:
- We set the switching on the shop-window lighting 15 minutes before sunset by means of Astro function with manual correction -15 minutes, so that the shop-window is well illuminated still before dusk.
 - To save energy, we set the shop-window switching off at 23:00 and switching on at 4:00. This setting is on the basis of the internal time of the timer.
 - For sunrise, we set the switching off the shop-window lighting by means of the Astro function (without correction).

Accessories of digital program timers MAN, MAA

- USB adapter for programming the timer by means of PC.
- Data key to backup and copy the set program.
- Applicable for MAN-D16 and MAA-D16.

| Type | Description | Order code | Weight [kg] | Package [pcs] |
|-----------|-------------|------------|-------------|---------------|
| OD-MA-USB | USB adapter | OEZ:43077 | 0.111 | 1 |
| OD-MA-DK | Data key | OEZ:43076 | 0.015 | 1 |

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Specifications of analog program timers

| Type | Economical | | Standard | |
|--|--------------------------------------|--------------------------------------|--------------------------------|--------------------------------|
| | MAE-A16-100-A230-MINI | MAE-A16-001-A230 | MAN-A16-100-A230-MINI | MAN-A16-001-A230 |
| Standards | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 |
| Approval marks | | | | |
| Main circuit (contact) | | | | |
| Arrangement of contacts ¹⁾ | 100 | 001 | 100 | 001 |
| Rated operating voltage U_c | AC 250 V | AC 250 V | AC 250 V | AC 250 V |
| Rated current I_e | 16 A | 16 A | 16 A | 16 A |
| Switched power | | | | |
| AC-1 | 3 680 W | 3 680 W | 3 680 W | 3 680 W |
| AC-3 | 1 000 W | 1 000 W | 1 000 W | 1 000 W |
| AC-5a uncompensated | 1 400 VA | 1 400 VA | 1 400 VA | 1 400 VA |
| AC-5a compensated | 58 W / 7 μ F | 58 W / 7 μ F | 58 W / 7 μ F | 58 W / 7 μ F |
| AC-5b | 1 000 W | 1 000 W | 1 000 W | 1 000 W |
| Min. switched power | 4 V / 1 mA | 4 V / 1 mA | 4 V / 1 mA | 4 V / 1 mA |
| Rated frequency f_n | 50/60 Hz | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Mechanical endurance | 20 000 000 operating cycles | 20 000 000 operating cycles | 20 000 000 operating cycles | 20 000 000 operating cycles |
| Electrical endurance | 100 000 operating cycles | 100 000 operating cycles | 100 000 operating cycles | 100 000 operating cycles |
| Connection - conductor rigid | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² |
| Connection - conductor flexible | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² |
| Torque | 1.2 Nm | 1.2 Nm | 1.2 Nm | 1.2 Nm |
| Time circuit | | | | |
| Min. switching interval | 15 min | 30 min | 15 min | 30 min |
| Min. time unit | 15 min | 15 min | 15 min | 15 min |
| Program | daily | daily | daily | daily |
| Run accuracy | according to network frequency 50 Hz | according to network frequency 50 Hz | \pm 2 s/day | \pm 2 s/day |
| Switching accuracy | \pm 5 min | \pm 5 min | \pm 5 min | \pm 5 min |
| Run reserve | - | - | 100 hr | 100 hr |
| Battery type | - | - | NiMH | NiMH |
| Possibility of battery replacement | - | - | yes | yes |
| Charging time | - | - | min. 48 hr | min. 48 hr |
| Supply circuit | | | | |
| Rated control voltage U_c | AC 230 V | AC 230 V | AC 230 V | AC 230 V |
| Operating range | 85 \div 110 % U_c | 85 \div 110 % U_c | 85 \div 110 % U_c | 85 \div 110 % U_c |
| Rated frequency f_n | 50 Hz | 50 Hz | 50/60 Hz | 50/60 Hz |
| Rated power loss P_v | 0.85 W | 0.85 W | 0.6 W | 0.6 W |
| Connection - conductor rigid | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² | 1.5 \div 4 mm ² |
| Connection - conductor flexible | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² | 1.5 \div 2.5 mm ² |
| Torque | 1.2 Nm | 1.2 Nm | 1.2 Nm | 1.2 Nm |
| Other data | | | | |
| Mounting on "U" rails according 60715 - type | TH 35 | TH 35 | TH 35 | TH 35 |
| Degree of protection | IP30 | IP30 | IP30 | IP30 |
| Ambient temperature | -10 \div +55 °C | -10 \div +55 °C | -10 \div +55 °C | -10 \div +55 °C |
| Working position | arbitrary | arbitrary | arbitrary | arbitrary |

¹⁾ Each digit indicates successively the number of make, break and break-make contacts.

TIMERS MAE, MAN, MAA

Specifications of digital program timers

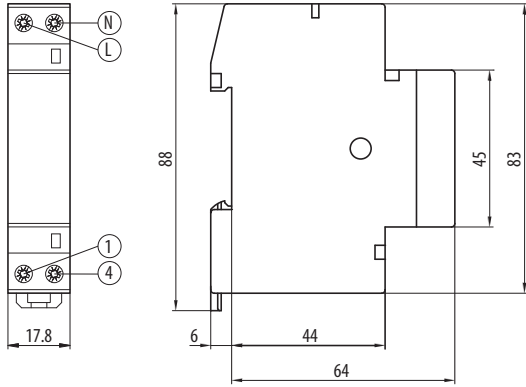
| Type | Economical | | Standard | Astro |
|---|---|--|--|--|
| | MAE-D16-100-A230-MINI | MAE-D16-001-A230 MAE-D16-002-A230 | MAN-D16-001-A230 MAN-D16-002-A230 | MAA-D16-001-A230 MAA-D16-002-A230 |
| Standards | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 | EN 60730-1 EN 60730-2-7 |
| Approval marks | | | | |
| Main circuit (contact) | | | | |
| Arrangement of contacts ¹⁾ | single-channel two-channel | 100 - | 001 002 | 001 002 |
| Rated operating voltage | U _e | AC 250 V | AC 250 V | AC 250 V |
| Rated current | I _e | 16 A | 16 A | 16 A |
| Switched power | AC-1 AC-3 AC-5a uncompensated AC-5a compensated AC-5b | 4 000 W 1 800 W 2 500 VA 60 W / 7 uF 1 200 W | 4 000 W 1 800 W 2 500 VA 60 W / 7 uF 1 200 W | 3 680 W 2 000 W 2 000 VA 600 W / 70 uF 2 000 W |
| Min. switched voltage/current | | 12 V / 100 mA | 12 V / 100 mA | 12 V / 100 mA |
| Rated frequency | f _n | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Mechanical endurance | | 10 000 000 operating cycles | 10 000 000 operating cycles | 10 000 000 operating cycles |
| Electrical endurance | | 100 000 operating cycles | 100 000 operating cycles | 100 000 operating cycles |
| Connection - conductor rigid | | 1 ÷ 4 mm ² | 1.5 ÷ 4 mm ² | 1.5 ÷ 4 mm ² |
| Connection - conductor flexible | | 0.5 ÷ 2.5 mm ² | 0.5 ÷ 2.5 mm ² | 1.5 ÷ 2.5 mm ² |
| Torque | | 1.2 Nm | 1.2 Nm | 1.2 Nm |
| Time circuit | | | | |
| Min. switching interval | | 1 min | 1 min | 1 s |
| Min. time unit | | 1 min | 1 min | 1 s |
| Program | | weekly | weekly | weekly |
| Automatic summer/winter time change | | yes | yes | yes |
| Number of memory places | single-channel two-channel | 28 - | 28 14 on each channel | 56 28 on each channel |
| Pre-set blocks in the week | | Mo-Su, Mo-Fr, Sa-Su, individual | Mo-Su, Mo-Fr, Sa-Su, individual | Mo-Su, Mo-Fr, Sa-Su, individual |
| Run accuracy | | ±1 s/day | ±1 s/day | ±0.1 s/day |
| Run reserve | | 3 years | 3 years | 5 years |
| Battery type | | Lithium | Lithium | Lithium |
| Possibility of battery replacement | | yes | yes | yes |
| Supply circuit | | | | |
| Rated control voltage | U _c | AC 230 V | AC 230 V | AC 230 V |
| Operating range | | 85 ÷ 110 % U _c | 85 ÷ 110 % U _c | 85 ÷ 110 % U _c |
| Rated frequency | f _n | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Rated power loss | P _v single-channel two-channel | 0.9 W - | 0.9 W 1.3 W | 1 W 1.5 W |
| Connection - conductor rigid | | 1 ÷ 4 mm ² | 1.5 ÷ 4 mm ² | 1.5 ÷ 4 mm ² |
| Connection - conductor flexible | | 0.5 ÷ 2.5 mm ² | 0.5 ÷ 2.5 mm ² | 1.5 ÷ 2.5 mm ² |
| Torque | | 1.2 Nm | 1.2 Nm | 1.2 Nm |
| Other data | | | | |
| Mounting on "U" rail according to EN 60715 – type | | TH 35 | TH 35 | TH 35 |
| Degree of protection | | IP20 | IP20 | IP20 |
| Ambient temperature | | -20 ÷ +55 °C | -20 ÷ +55 °C | -20 ÷ +55 °C |
| Working position | | arbitrary | arbitrary | arbitrary |

¹⁾ Each digit indicates successively the number of make, break and break-make contacts.

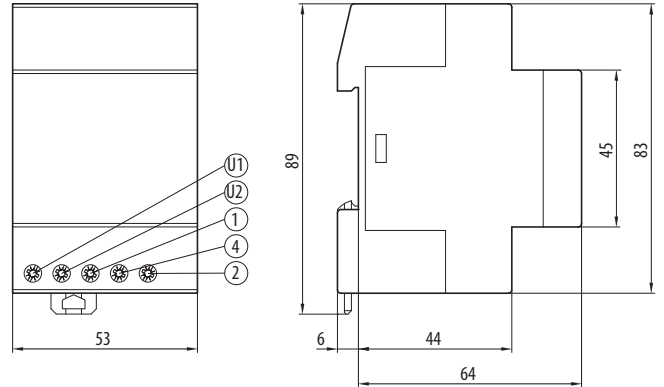
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Dimensions

**MAE-A16-100-A230-MINI
MAN-A16-100-A230-MINI**



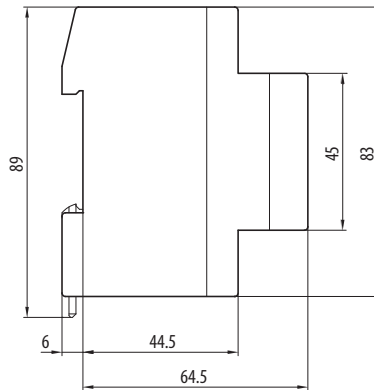
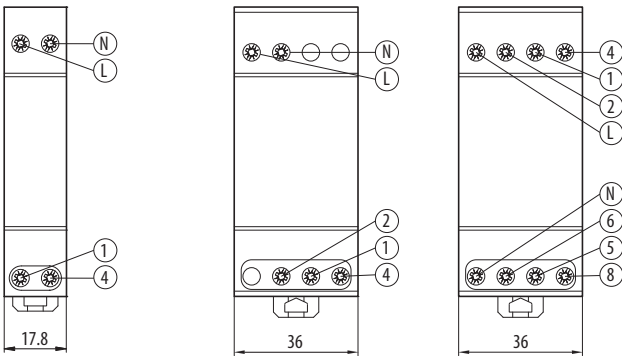
**MAE-A16-001-A230
MAN-A16-001-A230**



MAE-D16-100-A230-MINI

MAE-D16-001-A230

MAE-D16-002-A230

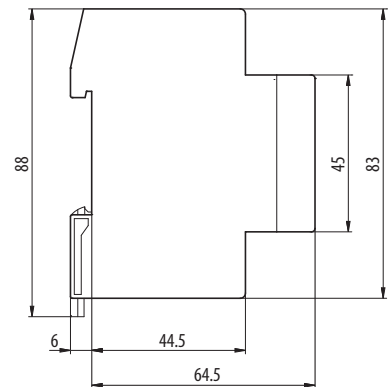
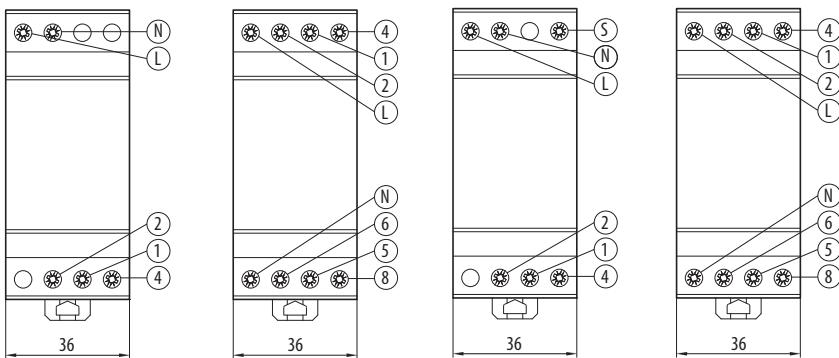


MAN-D16-001-A230

MAN-D16-002-A230

MAA-D16-001-A230

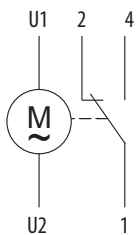
MAA-D16-002-A230



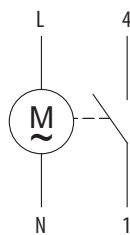
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Diagram

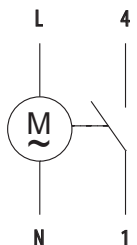
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MAN-A16-001-A230**



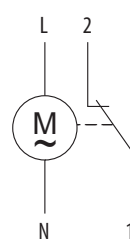
**MAE-A16-100-A230-MINI
MAN-A16-100-A230-MINI**



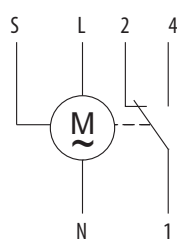
MAE-D16-100-A230-MINI



**MAE-D16-001-A230
MAN-D16-001-A230**



MAA-D16-001-A230



**MAE-D16-002-A230
MAN-D16-002-A230
MAA-D16-002-A230**

