

Time Control Technique

MINITIMER

Timer, On-delay

AA 7616, EC 7616, EF 7616, EH 7616

Translation
of the original instructions



- Power ON-delay relay according to EN 61812-1
- Delay up to 60 h
- 6 switchable time ranges, adjustable on front side
- Repeat accuracy $\leq \pm 0.5\%$ ($\leq \pm 1\%$ for ranges 3 s and 6 s)
- Time lapse display
- Switching position display (except for EH 7616)
- With instantaneous contact
- Available no-voltage safe
- EF 7616: Front side, protected against beam water, IP 65
- AA 7616: Width 45 mm
- EC 7616: Front surface 48 x 72 mm
- EF 7616: Front surface 72 x 72 mm
- EH 7616: Front surface 96 x 96 mm

Approvals and Markings



Applications

Time dependent controls

Function

Quick start:

For short times, the quick start is recommendable for a higher repeat accuracy. Here the version AA 7616.32 is necessary. The terminals A1-A2 always remain at nominal voltage (synchronous motor is continuously operating). Time elapse starts when connecting nominal voltage to B1-B2

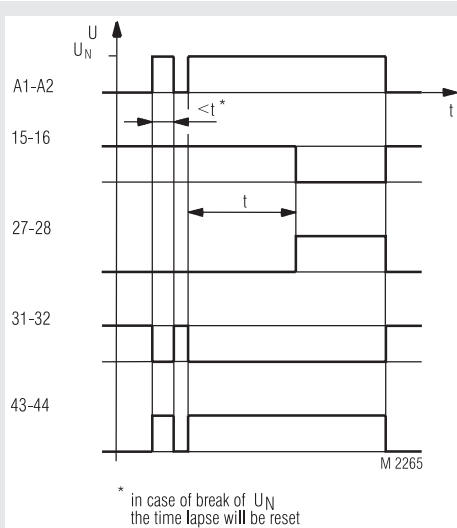
Frequency selection:

The frequency change-over 50/60Hz is done by moving a switch on the back side of the device with a screw driver

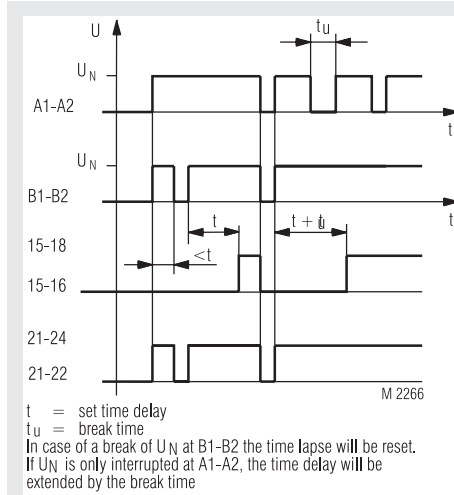
Timer AA 7616.__/100, EC 7616.__/100, EF 7616.__/100, EH 7616.__/100 delay on make, no-voltage save

When energizing the clutch it will be locked by a barrier, so that in case of a voltage loss. The already expired time remains stored; also the non-delayed contacts remain in the closed position. After elapse of the set time, the barrier will be opened and the delayed contacts will be actuated. If the set-time should start again after a stop of the time lapse, the time setting in the no-voltage condition has to be turned down to 0 and back again to the pre-set time value.

Function Diagrams

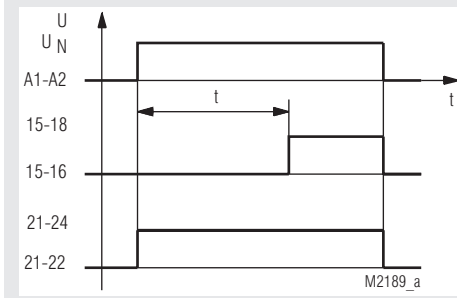


AA 7616.24

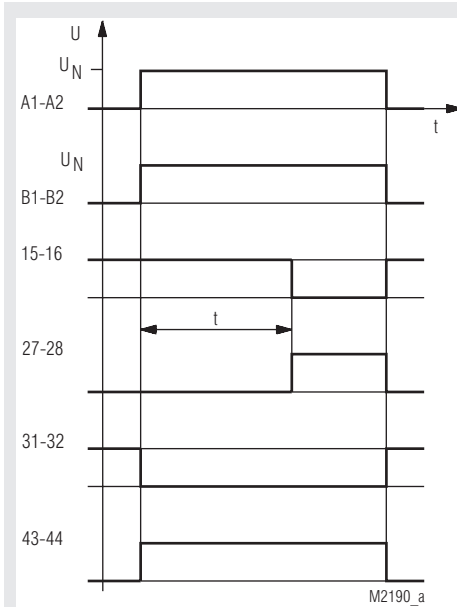


AA 7616.32

Function Diagram

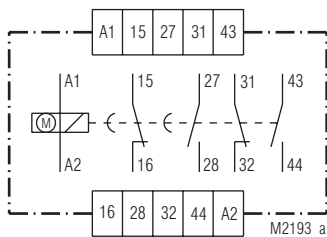


EC 7616.32

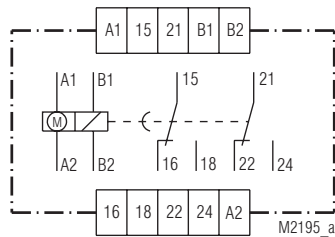


EF 7616.24, EH 7616.24

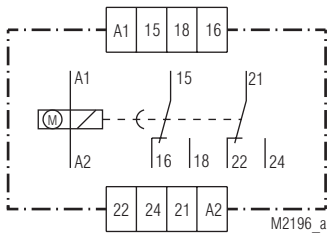
Circuit Diagrams



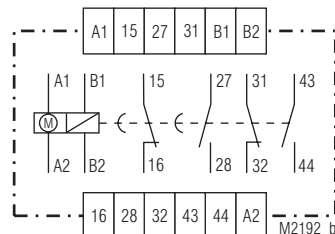
AA 7616.24



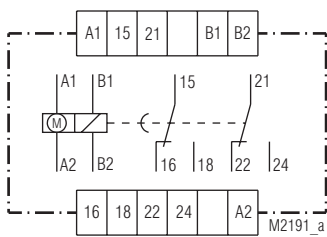
AA 7616.32



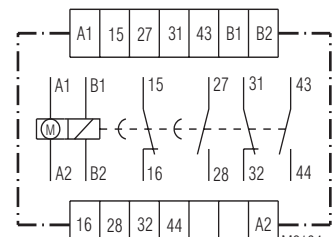
EC 7616.32



EF 7616.24



EF 7616.32



EH 7616.24

Connection Terminals

Terminal designation	Signal description
A1, A2	Control- / operating voltage U_N (for versions without B1, B2) Operating voltage U_N (for versions with B1, B2)
B1, B2	Control voltage U_N
15, 16	NC contact, delayed
27, 28	NO contact, delayed
31, 32	NC contact, instantaneous
43, 44	NO contact, instantaneous
15, 16, 18	C/O delayed
21, 22, 24	C/O contact instantaneous

Indicators

Time display: Via red pointer at device-scale
Red sign: Visible, when NO contacts closed (not for EH 7616)

Technical Data

Time circuit

Time range:

6-range-versions
0.15 ... 3 s 1.5 ... 30 s 15 ... 300 s
0.4 ... 10 s 4 ... 100 s 40 ... 1000 s
or
0.15 ... 3 s 0.15 ... 3 min 0.15 ... 3 h
1.5 ... 30 s 1.5 ... 30 min 1.5 ... 30 h
or
0.2 ... 6 s 0.2 ... 6 min 0.2 ... 6 h
2 ... 60 s 2 ... 60 min 2 ... 60 h

Time setting:

Infinite via black (white) setting pointer on absolute scale

Recovery time:

150 ms

Repeat accuracy:

$\leq \pm 0.5\%$ of the max. scale value
(for 3 and 6 s $\leq \pm 1\%$)

EH 7616, DC-version:

$\leq \pm 3\%$ of the max. scale value

Input

Nominal voltage U_N :

AC 24, 110, 230, 240 V

Special voltages

AA 7616: AC 12, 400, 415 V

EH 7616: DC 24, 48 V

Voltage range:

0.8 ... 1.1 U_N

Nominal consumption:

AC 7 VA

DC 24 V 5 W

DC 48 V 7 W

Nominal frequency:

50 / 60 Hz switchable

Frequency range:

$\pm 5\%$ f_N

Frequency influence:

Reverse proportional

Output

Contacts

AA 7616.24, EF 7616.24,
EH 7616.24:

1 NC contact, delayed
1 NC contact, instantaneous
1 NO contact, delayed
1 NO contact, instantaneous

AA 7616.32, EC 7616.32,
EF 7616.32:

1 changeover contact, delayed
1 changeover contact, instantaneous

Contact material:

AgNi + 0.2 μ m Au

Measured nominal voltage:

AC 250 V

Operate time of contacts:

< 35 ms

Release time:

< 60 ms

Thermal current I_{th} :

4 A

Switching capacity

To AC 15: 3 A / AC 230 V IEC/EN 60947-5-1

IEC/EN 60947-5-1

Electrical life

To AC 15 at 3 A, AC 230 V:

1 x 10⁵ switching cycles

To AC 15 at 1 A, AC 230 V:

5 x 10⁵ switching cycles

Permissible

switching frequency:

3000 switching cycles / h

Short circuit strength

Max. fuse rating:

10 A gG/ gL IEC/EN 60947-5-1

Mechanical life:

> 30 x 10⁶ switching cycles or
> 15000 h

Technical Data

General Data

Operating mode: Continuous operation

Temperature range:

Operation: - 20 ... + 55 °C

Storage: - 20 ... + 65 °C

Altitude: ≤ 2000 m

Clearance and creepage distances

Rated impulse voltage / pollution degree: 4 kV / 2 IEC 60664-1

EMC

Electrostatic discharge: 8 kV (air) IEC/EN 61000-4-2

HF irradiation: 10 V/m IEC/EN 61000-4-3

Fast transients: 4 kV IEC/EN 61000-4-4

Surge voltages

Between

wires for power supply: 2 kV IEC/EN 61000-4-5

Between wire and ground: 4 kV IEC/EN 61000-4-5

HF-wire guided: 10 V IEC/EN 61000-4-6

Interference suppression: Limit value class B EN 55011

Degree of protection IEC/EN 60529

AA 7616:

Housing: IP 40

Terminals: IP 20

EC, EH 7616:

Housing-front: IP 40

Housing: IP 30

Terminals: IP 10

EF 7616:

Housing-front: IP 65

Housing: Thermoplast with V0-behaviour

according to UL Subject 94

Amplitude 0.35 mm

frequency 10...55Hz, IEC/EN 60068-2-6

20 / 055 / 04; A/B/C IEC/EN 60068-1

Terminal arrangement: DIN 46199-5

Terminal designation: EN 50005

Wire connection: 2 x 2.5 mm² solid or

2 x 1.5 mm² stranded wire with sleeve

DIN 46228-1/-2/-3/-4

Flat terminals with self-lifting

clamping piece IEC/EN 60999-1

0.8 Nm

Fixing torque:

Mounting

AA 7616: DIN rail IEC/EN 60715

Flush mounting

EC 7616, EF 7616, EH 7616: 2 clamps with screws

Weight:

AA 7616: 320 g

EC 7616: 320 g

EF 7616: 400 g

EH 7616: 450 g

Dimensions

Width x height x depth

AA 7616: 45 x 77 x 127 mm

EC 7616: 48 x 72 x 120 mm

EF 7616: 72 x 72 x 128 mm

EH 7616: 96 x 96 x 138 mm

Front panel cut-out

EC 7616: 44 x 67 mm

EF 7616: 67 x 67 mm

EH 7616: ø 91⁺¹ mm

Front surface

EC 7616: 48 x 72 mm

EF 7616: 72 x 72 mm

EH 7616: 96 x 96 mm

Standard Type

AA 7616.24 AC 230 V 50/60 Hz 0.15 s ... 30 h

Article number: 0000678

• Time range: 0.15 s ... 30 h

• Nominal voltage U_N: AC 230 V

• Output: 1 NC contact, delayed

1 NC contact, instantaneous

1 NO contact, delayed

1 NO contact, instantaneous

• Width: 45 mm

Variant

AA 7616.___/100: No-voltage safe

AA 7616.___/102: Switchable from auto-reset to no-voltage safe version

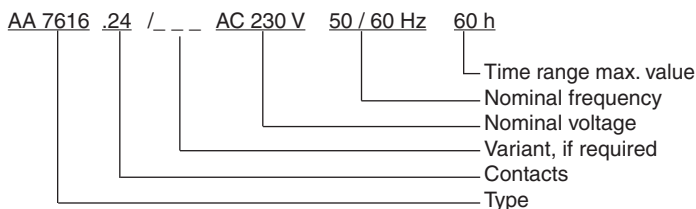
AA 7616.24/103: With switchable no-voltage safe function holding current ≥ 5 mA

EC 7616.___/100: No-voltage safe

EF 7616.___/100: No-voltage safe

EH 7616.___/100: No-voltage safe

Ordering example for variants



Accessories

For EC 7616:

ZS 700.06: Lockable cover
Article number: 0004057

ET 7001.407.034: Plug-in-socket for EC 7616.21
Article number: 0004072

For EF 7616:

ZS 700.07: Lockable cover
Article number: 0004058

ET 7616-0-22: Sealing ring for sealing at the front side
Article number: 0045909

