GRÄSSLIN

Industrial Range

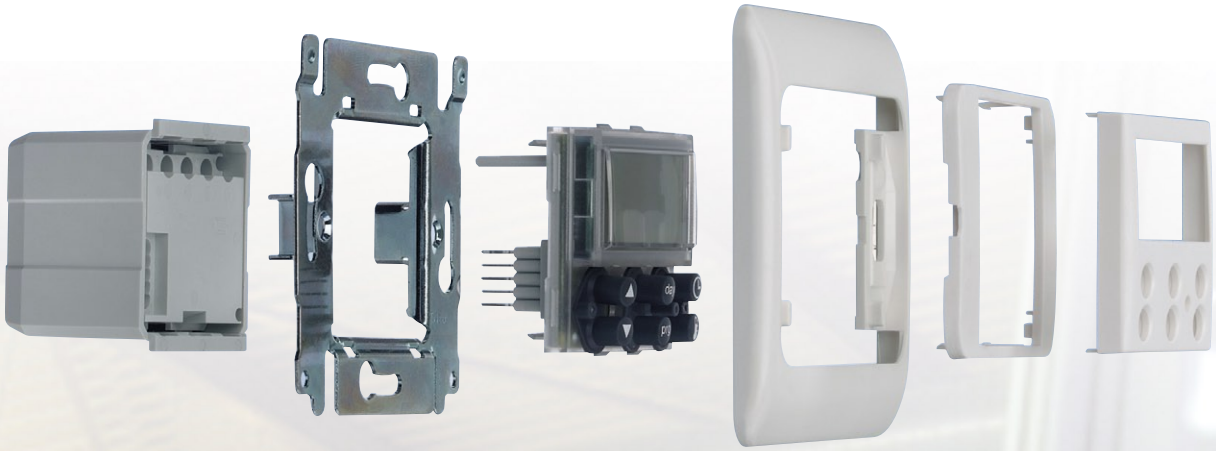
Time Switches / Thermostats

Time switch modules

Room thermostats

Universal time switches

Hour counters taxxo




Day
5°C
30°C
Info
Night
WORCESTER
Bosch Group

VORTEX
Z 153

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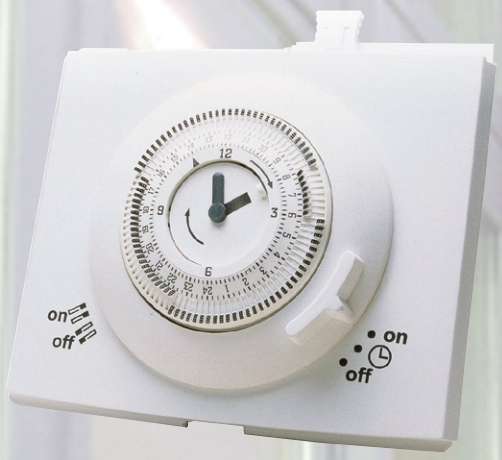
Customized solutions

for

your applications



Mechanical time switch modules

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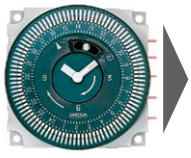
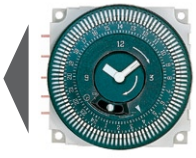
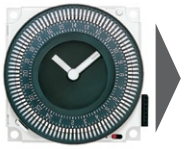
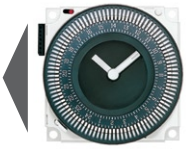
Overview RM - FM - KM - MM - DM

Type	Field of application	S = Synchronous drive Q = Quartz drive	Switching programme D = Day / W = Week	Programmable every ...	Switching power acc. to VDE, IEC	Switching power acc. to UL	Ambient temperature	H = Manual switch possible Permanent ON/AUTO/OFF Z = Clock face possible	Dimensions [mm]
RM/1 Q 	Flush mounting, suitable for electrical applications; PCB mounting possible	**Q**	**D / W**	**D = 15 min** **W = 1 h**	**5 mA/5 V DC** to **100 mA/42 V DC** Switching contact	–	**0°C** to **+55°C**	**H / Z**	**Ø = 64** **□ = 60** **D = 24,5**
FM/1 S 	Flush mounting, suitable for applications up to 16 A	**S**	**D / W**	**D = 15 min** **W = 2 h**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-40°C** to **+85°C**	**H / Z**	**Ø = 64** **□ = 60** **D = 32**
FM/1 Q 	Flush mounting, suitable for applications up to 16 A	**Q**	**D / W**	**D = 15 min** **W = 2 h**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+55°C**	**H / Z**	**Ø = 64** **□ = 60** **D = 32**
FM/1 Q 	Flush mounting, low load (0,1 A)	**Q**	**D / W**	**D = 15 min** **W = 2 h**	**100 mA/250 V AC** Switching contact	**100 mA/125 V AC** Switching contact	**-20°C** to **+55°C**	**H / Z**	**Ø = 64** **□ = 60** **D = 32**
MM/1 S 	Mini-module, for installation in compact applications up to 16 A	**S**	**D**	**D = 20 min**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+85°C**	**H**	**W = 57** **H = 53** **D = 51**
KM2/1 S 	For installation in compact applications up to 16 A, comfortable manual control switch	**S**	**D / W**	**D = 20 min** **W = 2,5 h**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+85°C**	**H**	**W = 42,4** **H = 67** **D = 42,5**
DM/1 S 	Flush mounting, predominantly for defrost applications	**S**	Preset switching programme see table page 11		**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-40°C** to **+85°C**	–	**Ø = 64** **□ = 60** **D = 32**
FM/1 Su 12h 	Flush mounting, predominantly for defrost applications	**S**	12 hour programme		**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-40°C** to **+85°C**	–	**Ø = 64** **□ = 60** **D = 32**

Colour variants RM - FM - KM - MM

Colour tappets :	white (light grey)	yellow	red	blue	green	black
Minimum order :	Unlimited	1.000 pieces	1.000 pieces	1.000 pieces	1.000 pieces	1.000 pieces
FM - RM :						
Basic colour black **Clock face white**						
Colour variant :	**Standard**	**01**	**02**	**03**	**04**	
Basic colour grey **Clock face black**						
Colour variant :		**05**	**06**	**07**	**08**	**09**
KM/MM :						
Basic colour black						
Colour variant :	**Standard**	**01**	**02**	**03**	**04**	
Basic colour grey						
Colour variant :		**05**	**06**	**07**	**08**	**09**

Connection variants FM - RM

Connection variant :	Standard	W 09	W 18	W 27
FM				
Output direction :				
RM				
Output direction :				

Mechanical time switch modules RM

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For installation into electrical circuits

- Extreme low profile
- Daily or weekly programme
- All modules also available without time base
- 1 Channel
- Flush mounting, preferably into electronic circuits
- Fitting compatible with digital time switch modules RMD
- Display of switching position
- Additional colour combinations see page 5

With clock face and manual switch

Quartz drive	Daily programme	**RM/1 QTuZH**
	Weekly programme	**RM/1 QWuZH**

With clock face

Quartz drive	Daily programme	**RM/1 QTuZ**
	Weekly programme	**RM/1 QWuZ**

With manual switch

Quartz drive	Daily programme	**RM/1 QTuH**
	Weekly programme	**RM/1 QWuH**

Without clock face and manual switch

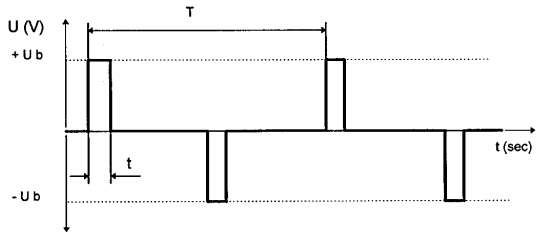
Quartz drive	Daily programme	**RM/1 QTu**
	Weekly programme	**RM/1 QWu**

Technical data

	RM/1 Q
Dimensions H x W x D (mm)	60 x 60 x 24,5
Cut out (mm)	Ø 64
Fitting depths (mm)	14,5
Weight (g) approx.	75
Nominal voltage	1,2 – 1,6 V DC
Current consumption	0,16 mA (Impulse 6mA) at 1,5 V DC
Switching contacts	
- sub miniature switch	Switch, galvanic insulation
Switching current AC	
– Resistive load (VDE, IEC)	100 mA/42 V AC 1 A/250 V AC
Switching current DC	100 mA/42 V DC
Minimum switching current DC	0,05 mA/5 V DC
Operation accuracy	type ±1,5 s/day at +20°C
Ambient temperature	0°C ... +55°C
Security level	User related
Shortest switching time	
– Daily programme	15 min
– Weekly programme	2 h
Shortest switching interval	
– Daily programme	15 min
– Weekly programme	1 h
Switching status display	yes
Automatic override	possible
Clock face	possible
Type of connection	Socket rail Pitch of 2.54 mm, countersunk into module

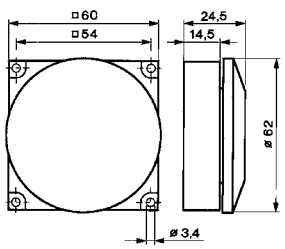
	RM/1 without timebase
Range of current supply (limits)	1,2 ... 1,6 V DC
Remaining waves	< 0,1 V
Current consumption	< 0,3 mW
Coil resistance	280 ±30 Ω
Controlling:	
Duration of impulse (t)	46,9 ... 62,5 ms
Control frequency:	
Normal operation:	
– Duration of period (T)	2 s
– Steps/s	1
– Recommended frequency tolerance (Δf/f)	± 10 ppm (0,864 s/day)
Recovery frequency:	
– Duration of period (T)	125 ms
– Steps/s	16
Angle of step (rotor)	180°
Revolution of rotor per second	0,5
Torque (Ncm/1,2 V DC)	> 1,25 cNcm and 1/min

Impulse diagram

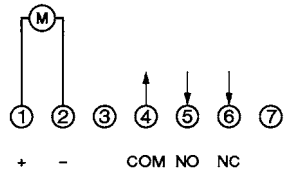


For synchronisation recovery frequency possible in 16 times speed!

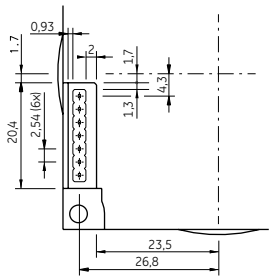
RM/1 Q



RM/1 Q



RM connection

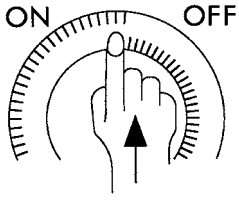


Note:

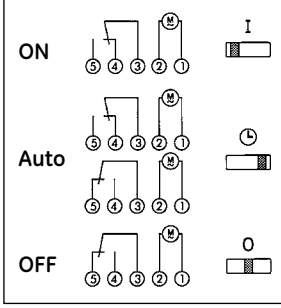
The required contact protection must be observed for installation in electrical unit. Both driving and load circuit must have safety extra-low voltage or must be at the same potential.
The clearance distance between driving and load circuit is 0.5 mm.

Please note the connection layout of the digital RMD on page 17.

Tappet position



RM/1 Q



Mechanical time switch modules FM

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For solutions up to 16 A

- Battery backup with quartz version
- Daily or weekly programme
- Improved dust protection
- 1 Channel
- 16 A/250 V AC switching capacity
- Fitting compatible with digital time switch modules FMD
- Only for fitted mounting
- Additional colour combinations see page 3

With clock face and manual switch

Synchronous drive	Daily programme	**FM/1 STuZH**
	Weekly programme	**FM/1 SWuZH**
Quartz drive	Daily programme	**FM/1 QRTuZH**
	Weekly programme	**FM/1 QRWuZH**

With clock face

Synchronous drive	Daily programme	**FM/1 STuZ**
	Weekly programme	**FM/1 SWuZ**
Quartz drive	Daily programme	**FM/1 QRTuZ**
	Weekly programme	**FM/1 QRWuZ**

With manual switch

Synchronous drive	Daily programme	**FM/1 STuH**
	Weekly programme	**FM/1 SWuH**
Quartz drive	Daily programme	**FM/1 QRTuH**
	Weekly programme	**FM/1 QRWuH**

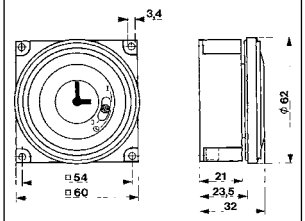
Without clock face and manual switch

Synchronous drive	Daily programme	**FM/1 STu**
	Weekly programme	**FM/1 SWu**
Quartz drive	Daily programme	**FM/1 QRTu**
	Weekly programme	**FM/1 QRWu**

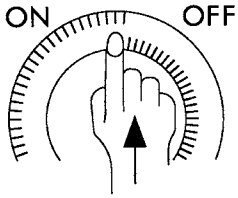
Technical data

	FM/1 S	FM/1 Q (16 A)	FM/1 Q low load (0,1 A)
Dimensions H x W x D (mm)	60 x 60 x 32	60 x 60 x 32	60 x 60 x 32
Cut out (mm)	Ø 64	Ø 64	Ø 64
Fitting depths (mm)	21	21	21
Weight (g) approx.	75	75	75
Nominal voltage	220-240 V AC/50 Hz 110-120 V AC/60 Hz	230V AC/130 V DC	230V AC/130 V DC
Power consumption	1 VA at 220 V AC	2 VA at 220 V AC 0,2 VA at 24 V DC	2 VA at 220 V AC 0,2 VA at 24 V DC
Current output – Relay	Switch, galvanic insulation	Switch, galvanic insulation	Switch, galvanic insulation
Switching current AC – Resistive load (VDE, IEC) – Resistive load (UL) – Inductive load cos. φ 0.6 – Incandescent lamp load	 16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W	 16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W	 0,1 A/250 V AC 0,1 A/125 V AC 0,05 A/250 V AC –
Switching current DC	–	–	100 mA/24 V DC 100 mA/60 V DC 100 mA/220 V DC
Minimum switching current AC	100 mA/20 V AC	100 mA/20 V AC	5 mA/300 mV AC
Minimum switching current DC	100 mA/20 V DC	100 mA/20 V DC	5 mA/300 mV DC
Battery backup	–	150 h	150 h
Battery charge time	–	70 h	70 h
Operation accuracy	Mains synchronous	type ± 1.5 s/day at 20°C	type ± 1.5 s/day at 20°C
Ambient temperature	–40°C ... +85°C	–20°C ... +55°C	–20°C ... +55°C
Security level for fitting according to instructions	II	II	II
Shortest switching time – Daily programme – Weekly programme	 15 min 2 h	 15 min 2 h	 15 min 2 h
Shortest switching interval – Daily programme – Weekly programme	 15 min 2 h	 15 min 2 h	 15 min 2 h
Automatic override	possible	possible	possible
Clock face	possible	possible	possible
According to	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7
Type of connection	flat DIN 6.3	flat DIN 6.3	flat DIN 6.3

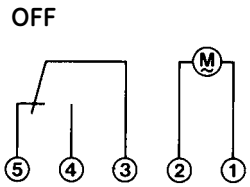
FM/1 S, FM/1 Q



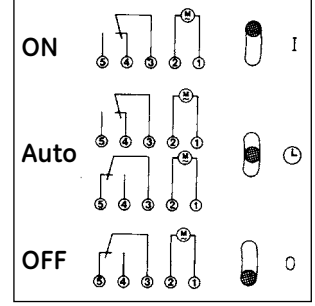
Tappet position



FM/1 S, FM/1 Q



FM manual switch



Voltage variants

	Nominal range AC (tolerance: -15% / +10%) Details on unit and packaging	Nominal range DC (tolerance: -15% / +10%) Details on unit and packaging	Information on invoice and delivery note
Quartz drive 45 - 60Hz	24 - 36V	12 - 15V	**30V AC / 12V DC**
	48 - 72V	24 - 36V	**60V AC / 30V DC**
	100 - 160V	48 - 72V	**130V AC / 60V DC**
	220 - 240V	100 - 160V	**230V AC / 130V DC**
Synchronous drive 50 or 60Hz	24V / 50Hz	--	**24V / 50Hz**
	110 - 120V / 60Hz	--	**110 - 120V / 60Hz**
	220 - 240V / 50Hz	--	**220 - 240V / 50Hz**
	220 - 240V / 60Hz	--	**220 - 240V / 60Hz**

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The solution for compact applications up to 16 A

- **Synchronous drive**
- **Weekly or daily programme**
- **1 Channel**
- **Further colour combinations see page 5**

Mini-module with manual switch

Synchronous drive	Daily programme	**MM/1 STuH**
	No weekly programme	**–**
	Also available without mounting lugs!	

With manual switch

Synchronous drive	Daily programme	**KM 2/1 STuH**
	Weekly programme	**KM 2/1 SWuH**

Without manual switch

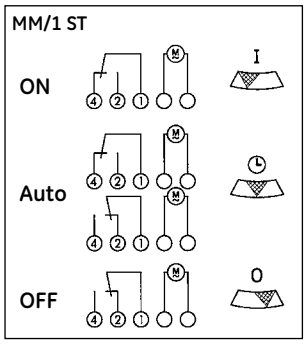
Synchronous drive	Daily programme	**KM 2/1 STu**
	Weekly programme	**KM 2/1 SWu**

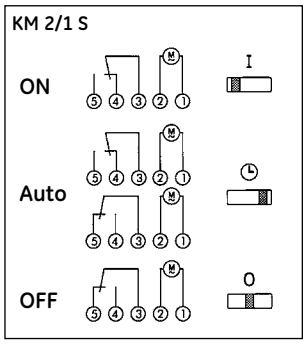
Voltage variants

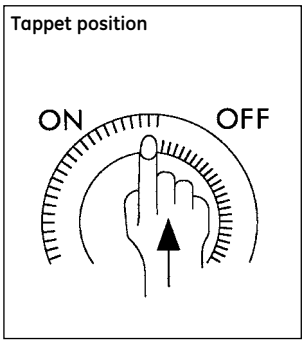
	Nominal range AC (tolerance: -15% / +10%) Details on unit and packaging	Information on invoice and delivery note
Synchronous drive 50 or 60Hz	24V / 50Hz	**24V / 50Hz**
	110 - 120V / 60Hz	**110 - 120V / 60Hz**
	220 - 240V / 50Hz	**220 - 240V / 50Hz**
	220 - 240V / 60Hz	**220 - 240V / 60Hz**

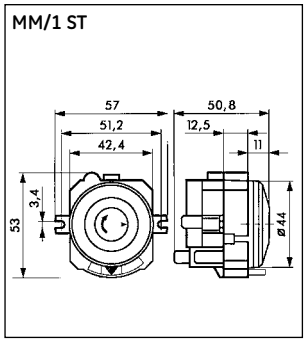
Technical data

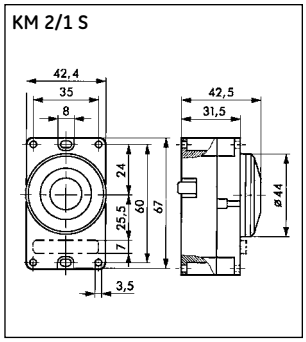
	MM/1 ST	KM 2/1 S
Dimensions H x W x D (mm)	53 x 57 x 51	67 x 42,4 x 42,5
Cut out (mm)	Ø 44	Ø 44
Fitting depths (mm)	40	31,5
Weight (g) approx.	55	65
Nominal voltage	220–240 V AC/50 Hz 110–120 V AC/60 Hz	220–240 V AC/50 Hz 110–120 V AC/60 Hz
Power consumption	1 VA at 220 V AC	1 VA at 220 V AC
Current output – miniature switch	Switch, galvanic insulation	Switch, galvanic insulation
Switching current AC – Resistive load (VDE, IEC) – Resistive load (UL) – Inductive load cos. φ 0.6 – Incandescent lamp load	16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W	16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W
Minimum switching current AC	100 mA/20 V AC	100 mA/20 V AC
Minimum switching current DC	100 mA/20 V DC	100 mA/20 V DC
Operation accuracy	Mains synchronous	Mains synchronous
Ambient temperature	–20°C ... + 85°C	–20°C ... + 85°C
Security level for fitting according to instructions	II	II
Shortest switching time – Daily programme – Weekly programme	20 min –	20 min 2 1/3
Shortest switching interval – Daily programme – Weekly programme	20 min –	20 min 2 1/3
Automatic override	possible	possible
According to	EN 60730–1 EN 60730–2–7	EN 60730–1 EN 60730–2–7
Type of connection	flat DIN 6.3 mm	flat DIN 6.3











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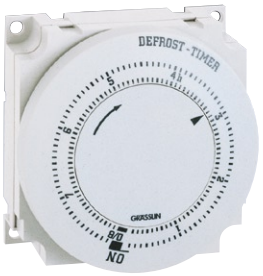
For applications in defrost technology

- Application defrost technology
- Synchronous drive
- Fixed cycle with DM modules
- 12 h programme with FM modules
- 1 Channel
- 16 A/250 V AC Switching current



DM-module

Synchronous drive	Fixed switching programme	**DM/1 Su**

FM-module

Synchronous drive	12 hour programme	**FM/1 Su 12h**

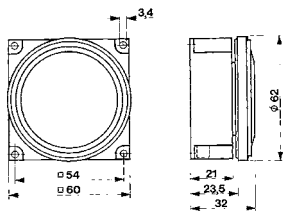
Voltage variants

	Nominal range AC (tolerance: -15% / +10%) Details on unit and packaging	Information on invoice and delivery note
Synchronous drive 50 bzw. 60Hz	24V / 50Hz	**24V / 50Hz**
	110 - 120V / 60Hz	**110 - 120V / 60Hz**
	220 - 240V / 50Hz	**220 - 240V / 50Hz**
	220 - 240V / 60Hz	**220 - 240V / 60Hz**
	Other versions on request	

Technical data

	DM/1 S	FM/1 Su 12h
Dimensions H x W x D (mm)	60 x 60 x 32	60 x 60 x 32
Cut out (mm)	Ø 64	Ø 64
Fitting depths (mm)	21	21
Weight (g) approx.	75	75
Nominal voltage	220–240 V AC/50 Hz 110–120 V AC/60 Hz	220–240 V AC/50 Hz 110–120 V AC/60 Hz
Power consumption	1 VA at 220 V AC	1 VA at 220 V AC
Current output – Relay	Switch, galvanic insulation	Switch, galvanic insulation
Switching current AC – Resistive load (VDE, IEC) – Resistive load (UL) – Inductive load cos. φ 0.6 – Incandescent lamp load	16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W	16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1350 W
Switching current DC	–	–
Minimum switching current AC	100 mA/20 V AC	100 mA/20 V AC
Minimum switching current DC	–	–
Battery backup	–	–
Operation accuracy	Mains synchronous	Mains synchronous
Ambient temperature	–40°C ... +85°C	–40°C ... +85°C
Security level for fitting according to instructions	II	II
Shortest switching time	Fixed switching programme	7,5 min
Shortest switching interval	Fixed switching programme	7,5 min
According to	EN 60730–1 EN 60730–2–7	EN 60730–1 EN 60730–2–7
Type of connection	flat DIN 6,3 mm	flat DIN 6,3 mm

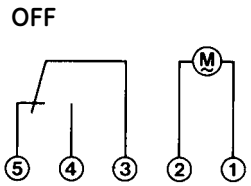
DM, FM



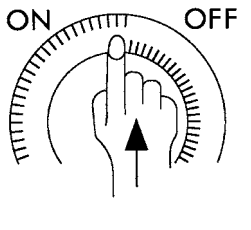
Switching times DM

Cycle time	Switching time
24h	1 x 10min
24h	1 x 21min
24h	1 x 30min
12h	1 x 5min
12h	1 x 10min
12h	1 x 15min
8h	1 x 3min
8h	1 x 7min
8h	1 x 10min

FM



Tappet position FM



Digital time switch modules

GRÄSSLIN

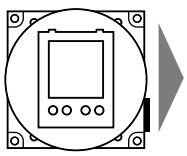
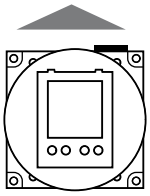
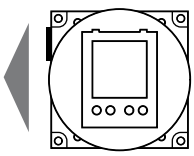
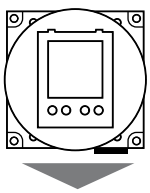
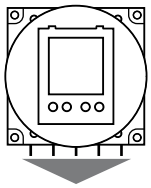
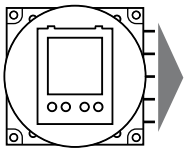
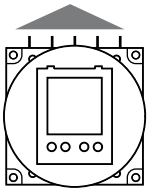
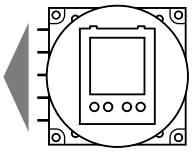
Overview RMD - FMD

Type	Channels	Current output / Power consumption	Text programming	Weekday blocks	Number of memory spaces	Override ON/OFF	Permanent ON/OFF	AM/PM Switch	Battery backup (years)	Position of electrical connection	Dimensions [mm]
RMD/120 	1	- CMOS: 0,1 mA at 3,4 V DC - open collector: 25 mA at 40 V	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 24,5
RMD/220 	2	- CMOS: 0,1 mA at 3,4 V DC - open collector: 25 mA at 40 V	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 24,5
RMD/150 	1	- CMOS: 0,1 mA at 3,4 V DC	X	free	50	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 24,5
RMD/250 	2	- CMOS: 0,1 mA at 3,4 V DC	X	free	50	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 24,5
FMD/120 	1	- Relay: 16 A NO - CMOS: 0,1 mA at 3,4 V DC - open collector: 25 mA at 40 V	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 32
FMD/220 	2	- Relay: 2 x 5 A NO - CMOS: 0,1 mA at 3,4 V DC - open collector: 25 mA at 40 V	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 32
FMD/150 	1	- Relay: 16 A NO - CMOS: 0,1 mA bei 3,4 V DC - open collector: 25 mA at 40 V	X	free	50	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 32
FMD/250 	2	- Relay: 2 x 5 A NO - CMOS: 0,1 mA at 3,4 V DC - open collector: 25 mA at 40 V	X	free	50	X	-	X	3	W09, W18, W27	ø = 64 □ = 60 D = 32

Overview IMD

Type	Channels	Current output / Power consumption	Text programming	Weekday blocks	Number of memory spaces	Override ON/OFF	Permanent ON/OFF	AM/PM Switch	Battery backup (years)	Dimensions [mm]
IMD/120 	1	- CMOS: 0,1 mA at 3,4 V DC	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	41,6 x 32,4
IMD/220 	2	- CMOS: 0,1 mA at 3,4 V DC	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	X	-	X	3	41,6 x 32,4
IMD/150 	1	- CMOS: 0,1 mA at 3,4 V DC	X	free	50	X	-	X	3	41,6 x 32,4
IMD/250 	2	- CMOS: 0,1 mA at 3,4 V DC	X	free	50	X	-	X	3	41,6 x 32,4

Connection variants FMD - RMD

Connection variant :	Standard	W 09	W 18	W 27
RMD Output direction :				
FMD Output direction :				

Digital time switch modules RMD

GRÄSSLIN

For installation in electronic circuits

- **Easy programming (menu or text programming)**
- **Current output: Open collector or CMOS**
- **Weekly and daily programme**
- **Standard programme**
- **Compact housing/low profile**
- **Mounting into electronic circuits possible**
- **Compatible fitting with mechanical time switch modules RM**
- **Only flush mounting**

Menu-led programming with flexible and fixed programmes

- 20 Memory spaces
- Manual switch-over to daylight saving time
- Switching output: - CMOS
  - open collector

1 Channel	**RMD 120**
2 Channels	**RMD 220**

Text programming

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Switching output: - CMOS
- Pre-set time and date
- Several programming languages: D, GB, F, I, E, P, NL, CZ

1 Channel	**RMD 150**

Text programming, date

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Switching output: - CMOS
- Pre-set time and date
- Several programming languages: D, GB, F, I, E, P, NL, CZ

2 Channels	**RMD 250**

Technical data

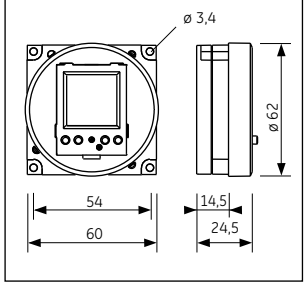
	RMD 120 RMD 220 open collector	RMD 120 RMD 220 CMOS	RMD 150 RMD 250 CMOS
Dimensions H x W x D (mm)	60 x 60 x 24,5	60 x 60 x 24,5	60 x 60 x 24,5
Cut out (mm)	Ø 64	Ø 64	Ø 64
Fitting depths (mm)	14,5	14,5	14,5
Weight (g) approx.	70	70	70
Nominal voltage	1,2 - 5,0 V DC	1,2 - 5,0 V DC	1,2 - 5,0 V DC
Current consumption without load	0,015 mA	0,015 mA	0,015 mA
Current output – Transistor	open collector	CMOS	CMOS
Switching current DC – open collector I_{sink} (max.)	25 mA	–	–
U (max.)	40 V	–	–
– CMOS	–	0,1 mA / 3,4 V DC	0,1 mA / 3,4 V DC
Battery backup *)	3 years from factory at 20°C	3 years from factory at 20°C	3 years from factory at 20°C
Operation accuracy	type ±1,5 s/day at 20°C	type ±1,5 s/day at 20°C	type ±1,5 s/day at 20°C
Ambient temperature **)	–10°C ... +55°C	–10°C ... +55°C	–10°C ... +55°C
Shortest switching time	1 min	1 min	1 min
Shortest switching interval	1 min	1 min	1 min
Number of channels	1 2	1 2	1 2
Number of memory spaces	20	20	50
Override	yes	yes	yes
Display of output status	yes	yes	yes
Switch-over to daylight saving time	button ±1 h	button ±1 h	automatic
Type of connection	Socket rail 2,54 mm	Socket rail 2,54 mm	Socket rail 2,54 mm
According to	EN 60730-1 / EN 60730-2-7	EN 60730-1 / EN 60730-2-7	EN 60730-1 / EN 60730-2-7

*) non rechargable
**) -25°C at limited display function

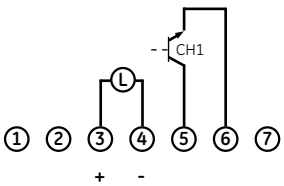
Note:
The required contact protection must be observed for installation in electrical unit. Both driving and load circuit must have safety extra-low voltage or must be at the same potential. The clearance distance between the driving and load circuit is 0.5 mm.

Please note the connection layout on page 7, for mechanical RM.

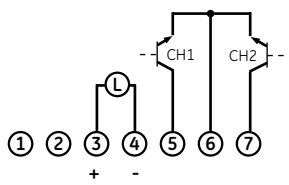
RMD 120, 220, 150, 250



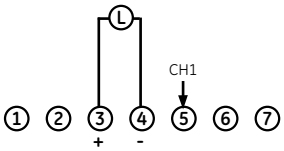
RMD 120 open collector



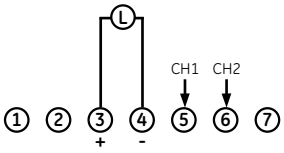
RMD 220 open collector



RMD 120, 150 CMOS



RMD 220, 250 CMOS



Digital time switch modules FMD

For solutions up to 16 A

- **Easy programming (menu or text programming)**
- **Battery backup 3 years**
- **Weekly and daily programme**
- **Compatible flush with mechanical time switch modules FM**
- **Only flush mounting**

Menu-led programming with flexible and fixed programmes

- 20 Memory spaces
- Manual switch-over to daylight saving time
- Switching output: - Relay
  - CMOS
  - open collector

1 Channel	**FMD 120**
2 Channels	**FMD 220**

Text programming

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Switching output: - Relay
  - CMOS
  - open collector
- Pre-set time and date
- Several programming languages: D, GB, F, I, E, P, NL, CZ

1 Channel	**FMD 150**

Text programming, date

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Switching output: - Relay
  - CMOS
  - open collector
- Pre-set time and date
- Several programming languages: D, GB, F, I, E, P, NL, CZ

2 Channels	**FMD 250**

Technical data

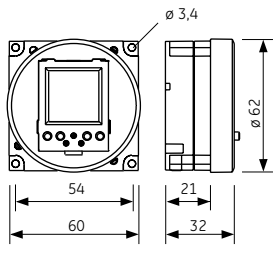
	FMD 120 / FMD 220 Relay	FMD 120 / FMD 220 open collector	FMD 120 / FMD 220 CMOS
Dimensions H x W x D (mm)	60 x 60 x 32	60 x 60 x 32	60 x 60 x 32
Cut out (mm)	Ø 64	Ø 64	Ø 64
Fitting depths (mm)	21	21	21
Weight (g) approx.	90	70	70
Nominal voltage	230 V AC/50-60 Hz 110-120 V AC/50-60 Hz 24 V AC/DC 12 V DC	1,2 - 5,0 V DC	1,2 - 5,0 V DC
Power consumption	4,4 VA	< 1 VA	< 1 VA
Current consumption without load	0,015 mA	0,015 mA	0,015 mA
Current output			
– Relay	Shutter, galvanic insulation	–	–
– Transistor	–	open collector	CMOS
Switching current AC			
– Resistive load (VDE, IEC)	16 A /250 V AC 5 A /250 V AC	–	–
– Resistive load (UL)	16 A /250 V AC -	–	–
– Inductive load cos. φ 0,6	4 A /250 V AC 1 A /250 V AC	–	–
– Incandescent lamp load	1000 W -	–	–
Switching current DC			
– Relay	10 A/24 V DC 2 A/24 V DC	–	–
	3 A/60 V DC 0,3 A/60 V DC	–	–
	1 A/100 V DC 0,1 A/100 V DC	–	–
– open collector I_{sink} (max.)	-	25 mA	–
U (max.)	-	40 V	–
– CMOS	-	–	0,1 mA / 3,4 V DC
Minimum switching current AC	100 mA / 20 V AC	–	–
Minimum switching current DC	100 mA / 20 V DC	–	–
Battery backup *)	3 years from factory at 20°C	3 years from factory at 20°C	3 years from factory at 20°C
Operation accuracy	type ±2,5 s/day at 20°C	type ±2,5 s/day at 20°C	type ±2,5 s/day at 20°C
Ambient temperature **)	–10°C ... +55°C	–10°C ... +55°C	–10°C ... +55°C
Shortest switching time	1 min	1 min	1 min
Shortest switching interval	1 min	1 min	1 min
Number of channels	1 2	1 2	1 2
Number of memory spaces	20	20	20
Override	yes	yes	yes
Display of output status	yes	yes	yes
Switch-over to daylight saving time	button ±1 h	button ±1 h	button ±1 h
Type of connection	DIN blade terminal 6.3 mm ***)	DIN blade terminal 6.3 mm ***)	DIN blade terminal 6.3 mm ***)
According to	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7

*) non rechargable

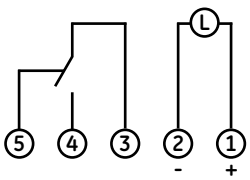
**) -25°C at limited display function

***) Further types of connection on request

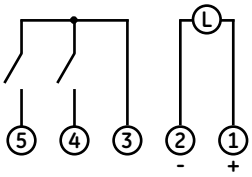
FMD 120, 220



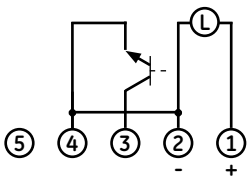
FMD 120 Relay



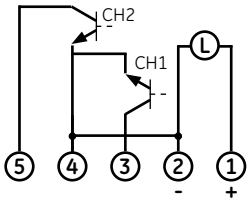
FMD 220 Relay



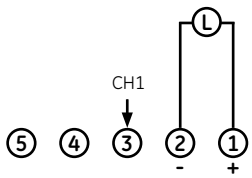
FMD 120 open collector



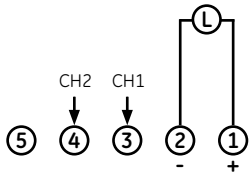
FMD 220 open collector



FMD 120 CMOS



FMD 220 CMOS



Technical data

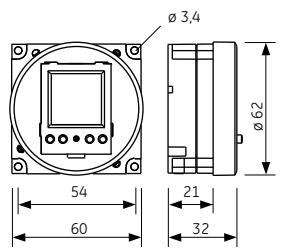
	FMD 150 / FMD 250 Relay	FMD 150 / FMD 250 open collector	FMD 150 / FMD 250 CMOS
Dimensions H x W x D (mm)	60 x 60 x 32	60 x 60 x 32	60 x 60 x 32
Cut out (mm)	Ø 64	Ø 64	Ø 64
Fitting depths (mm)	21	21	21
Weight (g) approx.	90	70	70
Nominal voltage	230 V AC/50-60 Hz 110-120 V AC/50-60 Hz	1,2 - 5 V DC	1,2 - 5 V DC
Power consumption	4,4 VA	< 1 VA	< 1 VA
Current consumption without load	0,015 mA	0,015 mA	0,015 mA
Current output			
– Relay	Shutter, galvanic insulation	–	–
– Transistor	–	open collector	CMOS
Switching current AC			
– Resistive load (VDE, IEC)	16 A /250 V AC 5 A /250 V AC	–	–
– Resistive load (UL)	16 A /250 V AC -	–	–
– Inductive load cos. φ 0,6	8 A /250 V AC 1 A /250 V AC	–	–
– Incandescent lamp load	1000 W -	–	–
Switching current DC			
– Relay	10 A/24 V DC 2 A/24 V DC	–	–
	3 A/60 V DC 0,3 A/60 V DC	–	–
	1 A/100 V DC 0,1 A/100 V DC	–	–
– open collector I_{sink} (max.)	-	25 mA	–
U (max.)	-	40 V	–
– CMOS	-	–	0,1 mA / 3,4 V DC
Minimum switching current AC	100 mA / 20 V AC	–	–
Minimum switching current DC	100 mA / 20 V DC	–	–
Battery backup *)	3 years from factory at 20°C	3 years from factory at 20°C	3 years from factory at 20°C
Operation accuracy	type ±2,5 s/day at 20°C	type ±2,5 s/day at 20°C	type ±2,5 s/day at 20°C
Ambient temperature **)	–10°C ... +55°C	–10°C ... +55°C	–10°C ... +55°C
Shortest switching time	1 min	1 min	1 min
Shortest switching interval	1 min	1 min	1 min
Number of channels	1 2	1 2	1 2
Number of memory spaces	50	50	50
Override	yes	yes	yes
Display of output status	yes	yes	yes
Switch-over to daylight saving time	automatic	automatic	automatic
Type of connection	DIN blade terminal 6.3 mm ***)	DIN blade terminal 6.3 mm ***)	DIN blade terminal 6.3 mm ***)
According to	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7

*) non rechargable

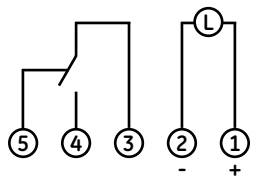
**) -25°C at limited display function

***) Further types of connection on request

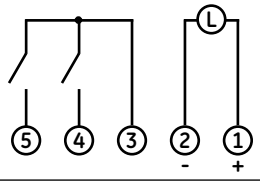
FMD 150, 250



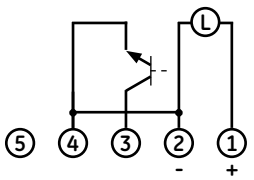
FMD 150 Relay



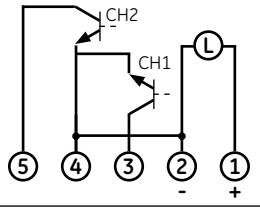
FMD 250 Relay



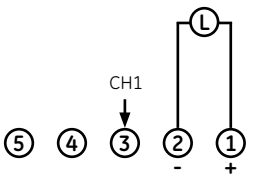
FMD 150 open collector



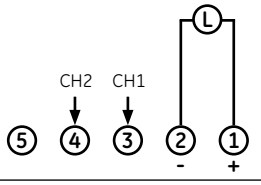
FMD 250 open collector



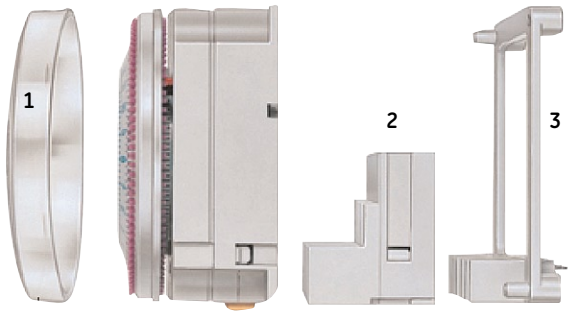
FMD 150 CMOS



FMD 250 CMOS



Accessories



Accessory for:

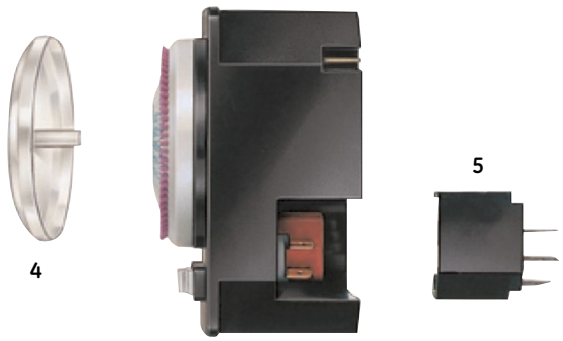
- FM (mechanical)
- RM (mechanical)

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
1	glass	- / EZ	01.76.0054.6

Accessory for:

- FM programme (mechanical an digita)

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
2	installation base	- / EZ	01.79.0002.2
3	soldered base	- / EZ	01.76.0150.2



Accessory for:

- KM 2/1 S

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
4	glass	- / EZ	01.02.0021.6
5	adapter	- / EZ	01.02.0004.2

Accessory for:

- MM/1

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
4	glass	- / EZ	01.02.0021.6

Digital time switch modules IMD

For compact applications

- **Easy programming (menu or text programming)**
- **1 or 2 Channels**
- **Weekly programme**
- **Programmable every minute**
- **CMOS output for direct mounting into electronic circuits**
- **Display of switching position**
- **Flush mounting**

Menu-led programming with flexible and fixed programmes

- 20 Memory spaces
- Manual switch-over to daylight saving time
- Switching output: - CMOS

1 Channel	**IMD 120**
2 Channels	**IMD 220**

Text programming

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Switching output: - CMOS
- Several programming languages: D, GB, F, I, E, P, NL, CZ

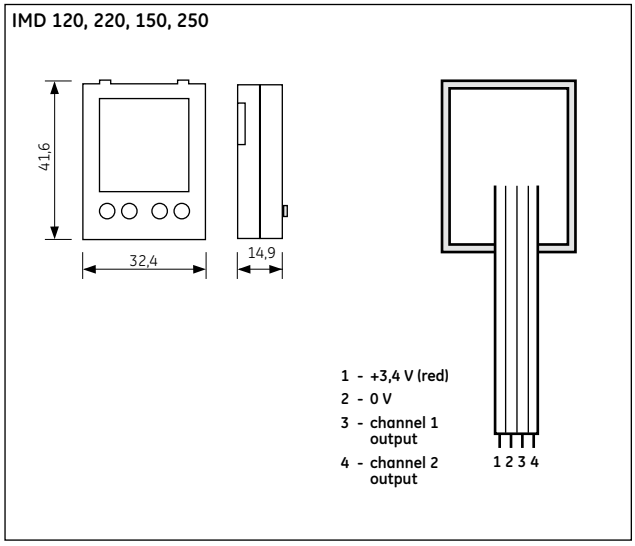
1 Channel	**IMD 150**
2 Channels	**IMD 250**

Technical data

	IMD 120 / IMD 220 CMOS	IMD 150 / IMD 250 CMOS
Dimensions H x W x D (mm)	41,6 x 32,4 x 14,9	41,6 x 32,4 x 14,9
Fitting depths (mm)	12	12
Weight (g) approx.	22	22
Nominal voltage	3,4 - 10 V DC	3,4 - 10 V DC
Current consumption without load	0,015 mA at 3,4 V DC	0,015 mA at 3,4 V DC
Current output – Transistor	CMOS	CMOS
Switching current DC – CMOS	0,1 mA at 3,4 V DC	0,1 mA at 3,4 V DC
Battery backup *)	3 years from factory at 20°C	3 years from factory at 20°C
Operation accuracy	type ±2,5 s/day at 20°C	type ±2,5 s/day at 20°C
Ambient temperature **)	–10°C ... +55°C	–10°C ... +55°C
Shortest switching time	1 min	1 min
Shortest switching interval	1 min	1 min
Number of channels	1 2	1 2
Number of memory spaces	20	50
Override	yes	yes
Display of output status	yes	yes
Switch-over to daylight saving time	button ± 1h	automatic
Type of connection	4-pole flat cable	4-pole flat cable
According to	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7

*) non rechargable

**) -25°C at limited display function



- **Wired connection**
- **Flat and attractive design**
- **Time and temperature control accuracy**

Digital room thermostat

- Easy programming
- Easy and quick installation
- Holiday programme up to 99 days
- 2-wired connection
- Battery operation

1 NO contact, 5(1)A / 250V AC	**famoso 1000**

Analogue room thermostat

- Easy programming
- Easy and quick installation
- 2-wired connection
- Battery operation

1 CO contact, 5(1)A / 250V AC	**famoso 601**

Digital room thermostat

- Electronic control with current/set temperature display
- With powerstealing - no batteries necessary
- For surface mounting

24V / 50-60Hz	**thermio E**

Frame for all thermostats thermio

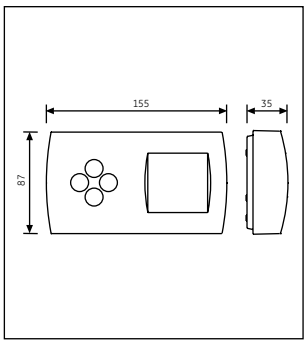
- 80,5 x 80,5 mm (5 mm thick)

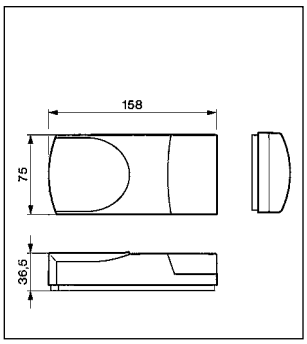
	Frame

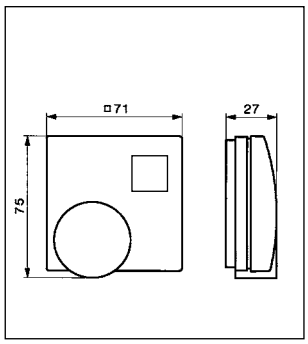
Technical data

	famoso 1000	famoso 601	thermio E
Dimensions H x W x D (mm)	87 x 155 x 35	158 x 75 x 36,4	75 x 71 x 21
Weight (g) approx.	185	250	60
Switching contact	1NO, opens with raising temperature	1CO, opens with raising temperature	1NO, opens with raising temperature
Operating voltage	2 x LR 6 alkaline batteries	2 x LR 6 alkaline batteries	24 V/50-60 Hz
Time accuracy at 25°C	± 2,5 s / day	± 2,5 s / day	
Battery lifetime	1 year (dep. on switching frequency)	1 year (dep. on switching frequency)	
Control range of day temperatures	+5°C ... +30°C	+5°C ... +32°C	+5°C ... +30°C
Control range of night temperatures	+5°C ... +30°C	+5°C ... +32°C	+5°C ... +30°C
Ambient temperature	-5°C ... +45°C	-5°C ... +45°C	-5°C ... +45°C
Antifreeze	5°C	setting at 5°C	
Differential gap of temperature	± 0,25 ...0,4 K	± 0,25 ...0,5 K	approx. 0,5 K
Controller	electronic, PID / 2 points	electronic, 2 points	electronic
Protection type	IP 20	IP 20	IP 20
Dayly programme	0,5 h	15 min	–
Weekly programme	0,5 h (programmable every 30min)	2 h (programmable every hour)	–
Operating modes	Day / Night / Party / Holiday / AUTO / Override	Day / Night / AUTO	–
Timer/ control	sign for heating	yes / -	–
Selector switch	Operating mode (Temp 1/2,Automatic, party and holydays)	Temperature 1, 2, Automatic	
Assembly mode	Mounting with receptacle terminals on support plate	Mounting with receptacle terminals on support plate	Wall mounting
Control period	5....30min	5....30min	–
Protection Class	II	II	II
Protection type	IP 20, see legend	IP 20, see legend	IP 20, see legend
According to	EN 60730-1, EN 60730-2-7 EN 60730-2-9	EN 60730-1, EN 60730-2-7 EN 60730-2-9	EN 60730-1, EN 60730-2-7 EN 60730-2-9
Language instruction manual (more languages possible)	D, GB, F, I, NL	D, GB, F, I, NL	D, GB, F, I, NL

Dimensional drawings







- **Transmission ensured by high quality 868 MHz**
- **Communication range of up to 30 meters**
- **Flat and attractive design**
- **Battery operation**
- **Different receivers available (s. page 28-31)**

Digital room thermostat

- 1 channel version for electrical direct heating
  1 channel version for central heating
  2 channel version for central heating and warm water
- Easy programming
- Easy and quick installation

1 channel (electrical direct heating)	**famoso 1000 rf T DH**
1 channel (central heating)	**famoso 1000 rf T 1ch**
2 channels (central heating/warm water)	**famoso 1000 rf T 2ch**

Digital room thermostat - for underfloor heating

- 1 Channel
- Easy programming
- Floor and room temperature control
- To be used with receiver Rec UP only

1 channel	**famoso 1000 rf T UH**

Analogue room thermostat

- Easy programming
- Easy and quick installation
- 1 channel

Daily programme	**famoso 601 rf T**
Weekly programme	**famoso 651 rf T**

Digital room thermostat

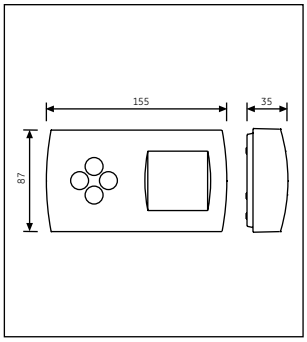
- Electronic control with current/set temperature display
- For surface mounting
- Frame see page 24

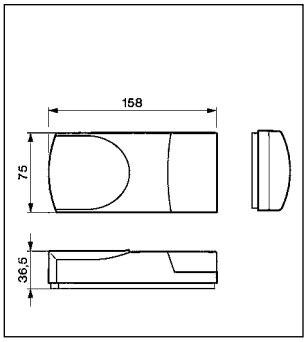
1 channel	**thermio E rfT**

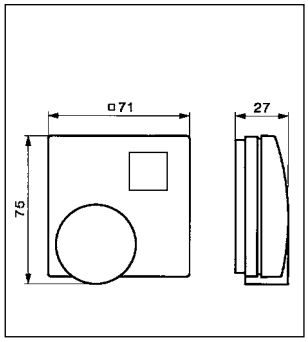
Techical data

	famoso 1000 rfT 1ch, 2ch famoso 1000 rfT UH famoso 1000 rfT DH	**famoso 601 rfT famoso 651 rfT**	**thermio E rfT**
Dimensions H x W x D (mm)	87 x 155 x 35	158 x 75 x 36,4	75 x 71 x 21
Weight (g) approx.	185	250	60
Switching contact	Depens on receivers´ type (see page 28 -31)	Depens on receivers´ type (see page 28 -31)	Depens on receivers´ type (see page 28 -31)
Operating voltage	2 x LR 6 alkaline batteries	2 x LR 6 alkaline batteries	1 x 3V alkaline batteries CR2032
Running reserve at 20°C	Programme memory		
Time accuracy at 25°C	± 2,5 s / day	± 2,5 s / day	
Battery lifetime	1 year (dep. on switching frequency)	1 year (dep. on switching frequency)	1 year (dep. on switching frequency)
Control range of day temperatures	+5°C ... +30°C	+5°C ... +32°C	+5°C ... +30°C
Control range of night temperatures	+5°C ... +30°C	+5°C ... +32°C	+5°C ... +30°C
Ambient temperature	-5°C ... +45°C	-5°C ... +45°C	-5°C ... +45°C
Antifreeze	5°C	setting at 5°C	
Differential gap of temperature	± 0,25 ...0,4 K	± 0,25 ...0,5 K	approx. 0,5 K
Controller	electronic, PID / 2 points	electronic, 2 points	electronic
Protection type	IP 20	IP 20	IP 20
Day program	0,5 h	15 min	–
Week program	0,5 h (programmable every 30min)	2 h (programmable every hour)	–
Operating modes	Day / Night / Party / Holiday / AUTO / Override	Day / Night / Party / Holiday / AUTO / Override	–
Timer/ control	sign for heating	yes / -	–
Selector switch	Temp 1/2,Automatic, party and holydays	Temperature 1,2, „Automatic"	–
Assembling mode	wall mounting	wall mounting	wall mounting
Connection	wireless	wireless	wireless
Control period	5....30min	5....30min	
Transmission frequency	868,3 MHz	868,3 MHz	868,3 MHz
Transmission power	corresp. LEPT/ERC/REC 70-03 E class 7a	corresp. LEPT/ERC/REC 70-03 E class 7a	corresp. LEPT/ERC/REC 70-03 E class 7a
Transmission range	approx. 30m, in buildings	approx. 30m, in buildings	approx. 30m, in buildings
Antenna	internal	internal	internal
Coding	65536 Codes	65536 Codes	65536 Codes
Power transmission	< 1mW	< 1mW	< 1mW
Radio state display	Symbol		Symbol
Protection Class	II	II	II
Protection type	IP 20, see legend	IP 20, see legend	IP 20, see legend
According to	EN 60730-1, EN 60730-2-7 EN 60730-2-9	EN 60730-1, EN 60730-2-7 EN 60730-2-9	EN 60730-1, EN 60730-2-7 EN 60730-2-9
Language instruction manual (more languages possible)	D, GB, F, I, NL	D, GB, F, I, NL	D, GB, F, I, NL

Dimensional drawings







GRÄSSLIN

- **Transmission ensured by high quality 868 MHz**
- **Suitable for multiple heating solutions**

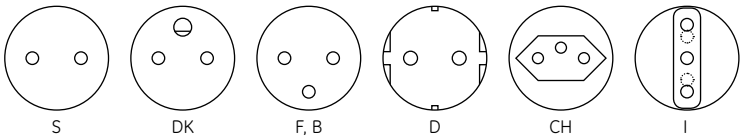
Receiver, surface mounting

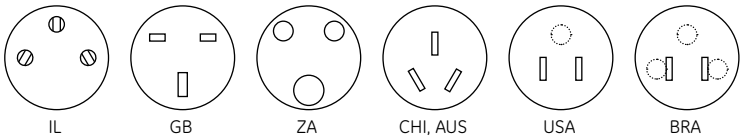
- Attractive design
- Quick installation
- For use with transmitter:
  · famoso 1000 rfT 1ch
  · famoso 601/651 rfT
  · thermio E rfT

1 channel	**RecUno**

Receiver, plug-in

- Simply plug in heating device
- For use with transmitter:
  · famoso 1000 rfT DH
  · famoso 601/651 rfT
  · thermio E rfT
- Diferent country-specific plugs





1 channel	**Rec Topica rf**

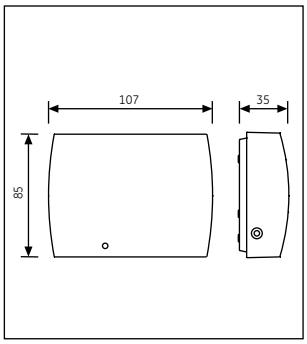
Receiver, flush mounting

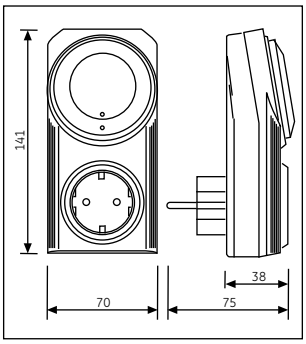
- Module for installation in flush-mounting connectors
- 220-240 V/50-60 Hz
- Underfloor temperature sensor included (length 4 m)
- For use with transmitter:
  · famoso 1000 rfT UH

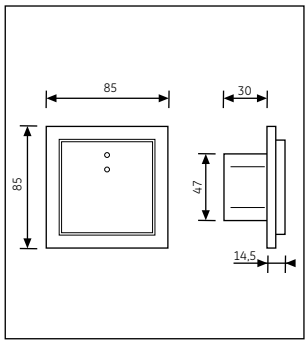
1 channel	**RecUP**

	RecUno	Rec Topica rf	Rec UP
Dimensions H x W x D (mm)	87 x 108 x 35	146 x 73 x 38	85 x 85 x 44,5
Weight (g) approx.	113	207	170
Switching contact	1 CO, potential free	1 NO	1 NO, potential free
Resistive load (VDE, IEC), cos phi 1	5 A/250 V (at temperature level up to 30°C) higher switching capacity on request	16 A/250 V (at temp. level up to 30°C)	16 A/250 V (at temp. level up to 30°C)
Inductive load, cos phi 0,6	1 A/250 V (at temperature level up to 30°C)	5 A/250 V (at temperature level up to 30°C)	5 A/250 V (at temperature level up to 30°C)
Minimum switching capacity DC	100mA at 6V AC/DC	100mA at 6V AC/DC	
Operating voltage	220-240 V~	220-240 V~	220-240 V~
Ambient temperature	-5°C ... +45°C	-5°C ... +45°C	-5°C bis +45°C
Protection type	IP 20	IP 20	IP 20
Assembly mode	depending on model	plug in	flush mounting
Tramsmission frequency	868,3 MHz	868,3 MHz	868,3 MHz
Tramsmission range	approx. 30m, in buildings	approx. 30m, in buildings	approx. 30m, in buildings
Antenna	internal	internal	intern
Coding	65536 Codes	65536 Codes	65536 Codes
Transmission status symbol	LED	LED	LED
Protection Class	II	II	II
Protection type	IP 20, see legend	IP 20, see legendnd	IP 20, see legend

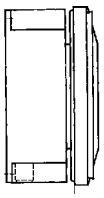
Dimensional drawings







- **Transmission ensured by high quality 868 MHz**
- **Suitable for integration in any heating unit (Boiler, burner, ...)**
- **Compatible flush with mechanical and digital time switch modules FM.. and RM..**



Receiver, flush mounting

- Module for installation in heating devices
- Compatible to all time switch modules FM
- Desig adjustments to heating device possible
- For use with transmitter:
  · famoso 1000 rfT 1ch, 2ch
  · famoso 601/651 rfT
  · thermio E rfT

1 channel	**FM/1 rf**
2 channels	**FM/2 rf**

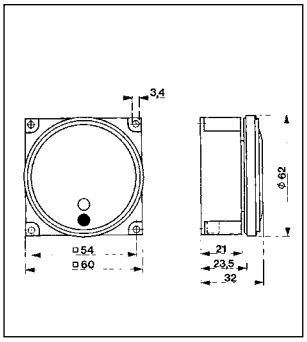
Receiver, flush mounting

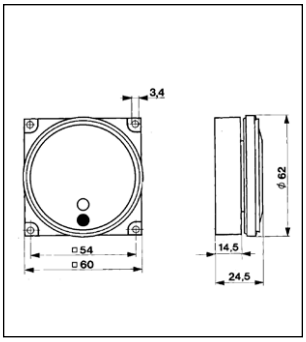
- Flat module for installation in heating devices
- Compatible to all time switch modules RM
- Desig adjustments to heating device possible
- For use with transmitter:
  · famoso 1000 rfT 1ch, 2ch
  · famoso 601/651 rfT
  · thermio E rfT

1 channel	**RM/1 rf**
2 channels	**RM/2 rf**

	FM/1 rf	FM/2 rf	RM/1 rf	RM/2 rf
Dimensions H x W x D (mm)	60 x 60 x 32		60 x 60 x 24,5	
Weight (g) approx.	67		47	
Switching contact	1 NO	1 NO + 1 CO	1 open collector	CMOS
Contact type	potential free		potential free	
- resistive load (VDE, IEC), cos phi 1	16 A/250 V AC 5 A/250 V AC (at temperature level up to 30°C)		5m A/24 V DC	
- inductive load, cos phi 0,6	5 A/250 V AC 1 A/250 V AC (at temperature level up to 30°C)			
Minimum switching capacity DC	100mA bei 6V AC/DC			
Operating voltage	220-240 V AC		5-33 V DC	
Ambient temperature	-5°C ... +45°C		-5°C ... +45°C	
Assembly mode	depending on model		depending on model	
Tramsmission frequency	868,3 MHz		868,3 MHz	
Tramsmission range				
- inside building	approx. 30 m		approx. 30 m	
- open field	100 m		100 m	
Antenna	internal		internal	
Coding	65536 codes		65536 codes	
Transmission status symbol	LED		LED	
Protection Class	II		II	
Protection type	IP 20, see legend		IP 20, see legend	

Dimensional drawings



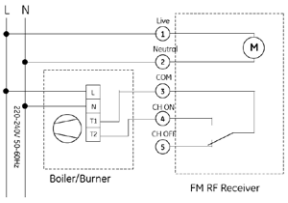


Central heating solutions (analogue) - 1 channel

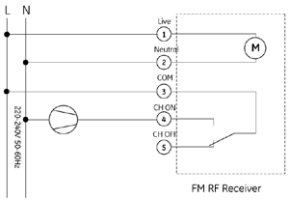
famoso 601/651 rfT + FM/1 rf or RM/1 rf

- Famoso 601RF Set is specially designed for both new-build or retrofit installations
- Clock thermostat brings different running modes, AUTO, comfort temperature and reduced temperature
- Daily or weekly programming defined by user
- Emergency mode is enabled into receiver to ensure a minimum temperature level in case transmission is lost during a long period of time

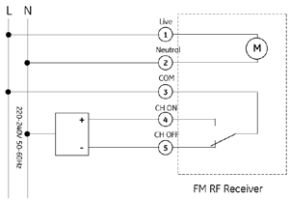
Wiring diagram for oil or gas boilers/burners



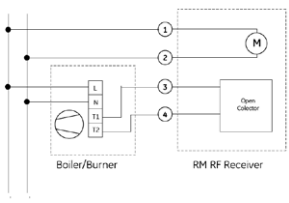
Wiring diagram for circulation pump or actuators



Wiring diagram for motorized mixing valves



Wiring diagram for oil or gas boilers/burners

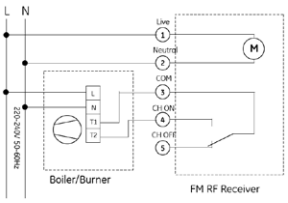


Central heating solutions (digital) - 1 channel

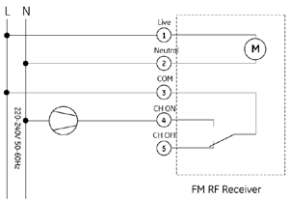
famoso 1000 rfT + FM/1 rf or RM/1 rf

- Famoso 1000 rf Set is specially designed for both new-build or retrofit installations
- Clock thermostat brings different running modes, AUTO, comfort temperature, reduced temperature, party, holiday and override
- Daily or weekly programming, 4 different programmes predefined from factory and one program to be defined by user
- Emergency mode is enabled into receiver to ensure a minimum temperature level in case transmission is lost during a long period of time

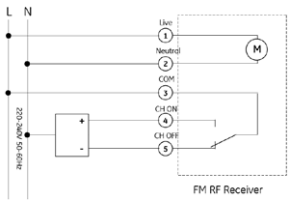
Wiring diagram for oil or gas boilers/burners



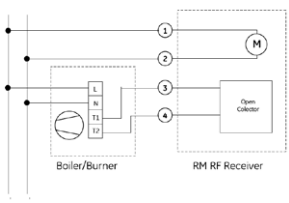
Wiring diagram for circulation pump or actuators



Wiring diagram for motorized mixing valves



Wiring diagram for oil or gas boilers/burners

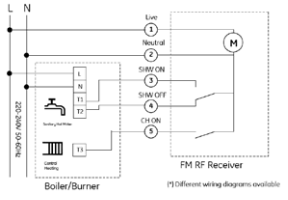


Central heating & Sanitary Hot Water solutions (digital) - 2 channels

famoso 1000 rfT + FM/2 rf or RM/2 rf

- Famoso 1000 rf Set is specially designed for both new-build or retrofit installations
- Clock thermostat brings different running modes, AUTO, comfort temperature, reduced temperature, party, holiday and override
- Daily or weekly programming, 2 different programmes predefined from factory and one program to be defined by user
- Emergency mode is enabled into receiver to ensure a minimum temperature level in case transmission is lost during a long period of time
- Two channels, Central Heating (CH) channel programmable depending on time frames and temperature levels and Sanitary Hot Water (SHW) channel programmable depending on time frames

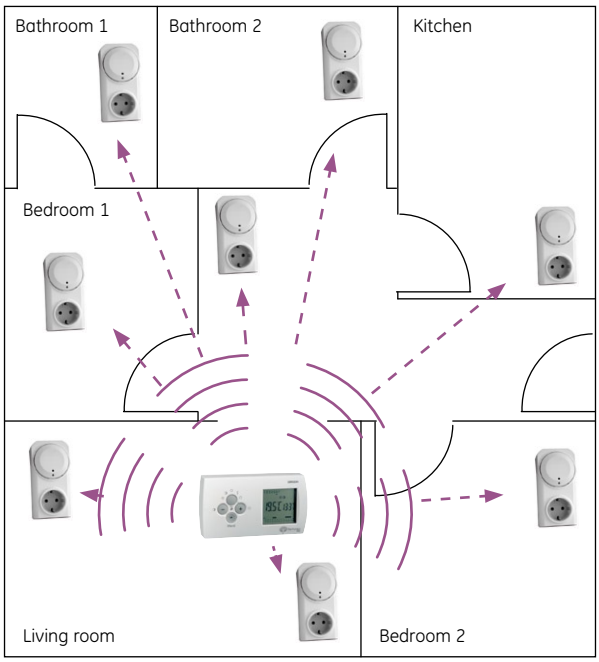
Wiring diagram for oil or gas boilers/burners

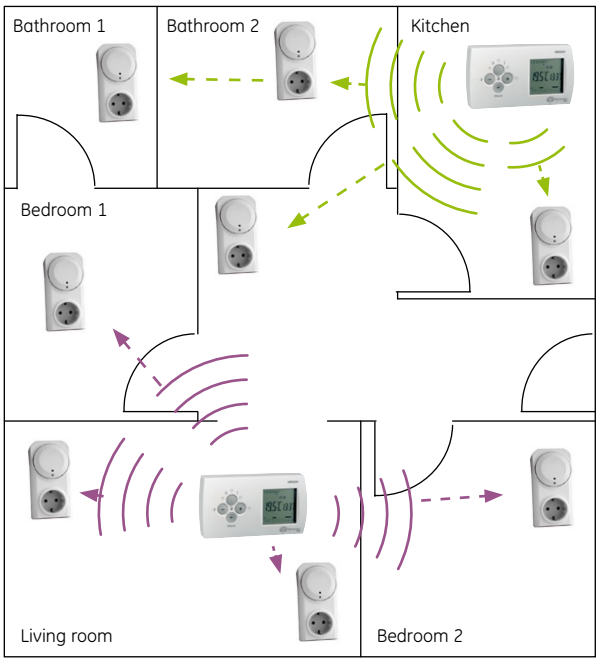


Central heating & Sanitary hot water solutions - 2 channels

famoso 1000 rfT DH + Rec Topica rf

- Famoso 1000 rf DH Set is specially designed to control portable electrical heaters.
- You can control as many receivers/heaters as you need.
- Switching capacity up to 16A per each receiver/circuitm
- Clock thermostat brings different running modes, AUTO, comfort temperature, reduced temperature, party, holiday and override
- Daily or weekly programming, 4 different programmes predefined from factory and one program to be defined by user
- Emergency mode is enabled into receiver to ensure a minimum temperature level in case transmission is lost during a long period of time



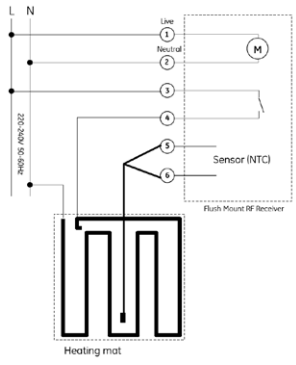


Underfloor heating solutions (digital) - 1 channel

famoso 1000 UH rfT + Rec UP

- Famoso 1000RF Set is specially designed for both new-build or retrofit installations
- Clock thermostat brings different running modes, AUTO, comfort temperature, reduced temperature, party, holiday and override
- Daily or weekly programming, 4 different programmes predefined from factory and one program to be defined by user
- Emergency mode is enabled into receiver to ensure a minimum temperature level in case transmission is lost during a long period of time
- Remote temperature sensor (included) controls the underfloor temperature to ensure perfect control and safe installation. The transmitter measures the room temperature to guarantee the level of comfort.
- Flush mounted receiver contains the most important safety features, to avoid any damage to electrical installations, or to floor materials.

Wiring diagram



GRÄSSLIN

Overview tactic

Type	Field of application	S = Synchronous drive Q = Quartz drive	Switching programme D = Day / W = Week	Programmable every ...	Switching power acc. to VDE, IEC	Switching power acc. to UL	Ambient temperature	H = Manual Switch possible Permanent ON/AUTO/OFF Z = Clock face possible	Fitting dimensions [mm]
tactic 111.2 	Flush mounting, suitable for applications up to 16 A	**S**	**D**	**15 min**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+55°C**	**H / Z**	☐ = 66 **D = 20,5**
tactic 171.2 	Flush mounting, suitable for applications up to 16 A	**S**	**W**	**2 h**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+85°C**	**H / Z**	☐ = 66 **D = 20,5**
tactic 211.2 	Flush mounting, suitable for applications up to 16 A	**Q**	**D**	**15 min**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+55°C**	**H / Z**	☐ = 66 **D = 20,5**
tactic 271.2 	Flush mounting, low load (0,1 A)	**Q**	**W**	**2 h**	**16 (8) A/250 V AC** Switching contact	**21 A/250 V AC** Switching contact	**-20°C** to **+55°C**	**H / Z**	☐ = 66 **D = 20,5**

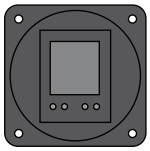
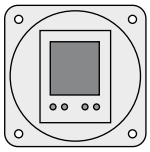
Colour variants tactic

Colour tappets : Minimum order :	**white (light grey)** Unlimited	**yellow** 1.000 pieces	**ret** 1.000 pieces	**blue** 1.000 pieces	**green** 1.000 pieces	**black** 1.000 pieces
Basic colour black **Clock face white**						
Colour variant :	**Standard**	**01**	**02**	**03**	**04**	
Basic colour grey **Clock face black**						
Colour variant :		**05**	**06**	**07**	**08**	**09**

Overview tactic plus

Type	Channels	Current output / Power consumption	Text programming	Weekday blocks	Number of memory spaces	Override ON/OFF	Permanent ON/OFF	AM/PM Switch	Battery backup (years)	Fitting dimensions [mm]
tactic 371.2 plus 	1	- **Relay:** **NO** **16 (4) A / 250 V AC**	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	-	X	X	3	☐ **66, D = 20,5**
tactic 372.1 plus 	2	- **Relay:** **NO** **16 (2,5) A / 250 V AC**	-	single days Mo - Fr Mo - Sa Mo - Su Sa + Su	20	-	X	X	3	☐ **66, D = 20,5**
tactic 571.2 plus 	1	- **Relay:** **NO** **16 (8) A / 250 V AC**	X	free	50	-	X	X	3	☐ **66, D = 42**
tactic 572.1 plus 	2	- **Relay:** **NO** **16 (2,5) A / 250 V AC**	X	free	50	-	X	X	3	☐ **66, D = 42**

Colour variants tactic plus

Minimum order :	Unlimited	
Basic colour black 		
Colour variant :	**Standard 1**	
Basic colour grey 		
Colour variant :	**Standard 2**	

For solutions up to 16 A

- Easy fitting into switch boards
- Quartz drive with battery backup
- Synchronous drive without battery backup
- 1 Channel
- Weekly or daily programme
- 16 A/250 V AC Switching capacity
- Flush mounting
- Further colour combinations page 34

With clock face

Quartz drive	Daily programme	**tactic 211.2**
	Weekly programme	**tactic 271.2**

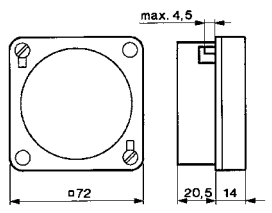
With clock face

Synchronous drive	Daily programme	**tactic 111.2**
	Weekly programme	**tactic 171.2**

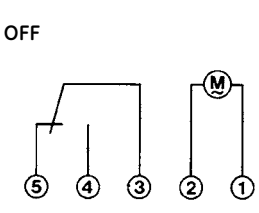
Technical data

	tactic 111.2 tactic 171.2	tactic 211.2 tactic 271.2
Dimensions H x W x D (mm)	72 x 72 x 34,5	72 x 72 x 34,5
Cut out (mm)	66 x 66	66 x 66
Dimensions of front frame (mm)	72 x 72	72 x 72
Fitting depths (mm)	20,5	20,5
Weight (g) ca.	100	100
Nominal voltage	220 - 240 V AC / 50 Hz 100 - 120 V AC / 60 Hz	230 V AC / 130 V DC 130 V AC / 60 V DC 60 V AC / 30 V DC 30 V AC / 12 V DC
Power consumption	1 VA at 230 V AC	2 VA at 230 V AC 0,2 VA at 24 V DC
Current output - Relay	 1 changeover contact, galvanic insulation	 1 changeover contact, galvanic insulation
Switching current AC – Resistive load (VDE, IEC) – Resistive load (UL) – Inductive load cos. φ 0,6 – Incandescent lamp load	 16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1300 W	 16 A/250 V AC 21 A/250 V AC 8 A/250 V AC 1300 W
Minimum switching current AC	100 mA/20 V AC	100 mA/20 V AC
Minimum switching current DC	100 mA/20 V DC	100 mA/20 V DC
Battery backup	–	150 h
Battery charge time	–	70 h
Operation accuracy	Mains synchronous	type ± 1,5s/day at 20°C
Ambient temperature	–20°C ... +55°C	–20°C ... +55°C
Security level for fitting according to instructions	 II	 II
Shortest switching time – Daily programme – Weekly programme	 15 min 2 h	 15 min 2 h
Shortest switching interval – Daily programme – Weekly programme	 15 min 2 h	 15 min 2 h
Automatic override	possible	possible
Clock face	yes	yes
Sealing	possible	possible
According to	EN 60730-1 EN 60730-2-7	EN 60730-1 EN 60730-2-7
Type of connection	flat DIN 6.3 mm Fitted socket (Accessories)	flat DIN 6.3 mm Fitted socket (Accessories)

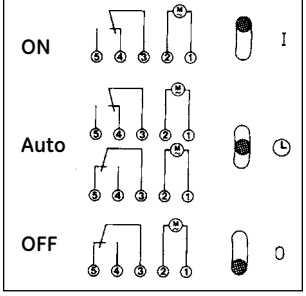
Dimensionl drawing



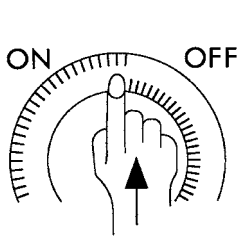
tactic circuit diagram



tactic manual switch



Tappet position



For solutions up to 16 A

- **Battery backup**
- **Weekly and daily programme**
- **Easy programming**
- **Compatible fitting with mechanical universal time switches tactic**
- **Flush or surface mounting**

Menu-led programming with flexible and fixed programmes

- 20 Memory spaces
- Manual switch-over to daylight saving time

1 Channel	**tactic 371.2 plus**
2 Channels	**tactic 372.1 plus**

Text programming

- 50 Memory spaces
- Automatic switch-over to daylight saving time
- Pre-set time and date
- Several programming languages: D, GB, F, I, E, P, NL, CZ

1 Channel	**tactic 571.2 plus**
2 Channels	**tactic 572.1 plus**

Technical data

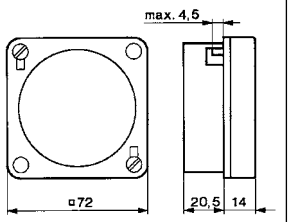
	tactic 371.2 plus	tactic 571.2 plus	tactic 372.1 plus	tactic 572.1 plus
Dimensions H x W x D (mm)	72 x 72 x 35	80 x 72 x 58	72 x 72 x 35	80 x 72 x 58
Cut out (mm)	66 x 66		66 x 66	
Fitting depths (mm)	20,5	42	20,5	42
Frame dimensions DIN 43700 (mm)	72 x 72		72 x 72	
Weight (g) ca.	135	220	135	220
Nominal voltage	220-240 V AC/50-60 Hz 110-120 V AC/50-60 Hz		220-240 V AC/50-60 Hz 24 V AC/DC 12 V DC	
Power consumption	4,4 VA		4,4 VA	
Current output – Relay	1 changeover contact, galvanic insulation		2 changeover contacts, galvanic insulation	
Switching current AC – Resistive load (VDE, IEC) – Inductive load cos. φ 0,6 – Incandescent lamp load	 16 A /250 V AC 4 A /250 V AC 1000 W	 8 A /250 V AC 	 16 A /250 V AC 2,5 A /250 V AC 500 W	
Switching current DC	10 A/24 V DC 3 A/60 V DC 1 A/100 V DC		13 A/24 V DC 0,7 A/60 V DC 0,3 A/100 V DC	
Minimum switching current AC	100 mA/20 V AC		100 mA/20 V AC	
Minimum switching current DC	100 mA/20 V DC		100 mA/20 V DC	
Battery backup *)	3 years from factory at 20°C		3 years from factory at 20°C	
Operation accuracy	type ±2,5 s/day at 20°C		type ±2,5 s/day at 20°C	
Ambient temperature **)	–10°C ... +55°C		–10°C ... +55°C	
Shortest switching time	1 min		1 min	
Shortest switching interval	1 min		1 min	
Number of channels	**1**		**2**	
Number of memory spaces	20	50	20	50
Override	yes		yes	
Display of output status	yes		yes	
Switch-over to daylight saving time	button ±1 h	automatic	button ±1 h	automatic
According to	EN 60730-1, EN 60730-2-7		EN 60730-1, EN 60730-2-7	

*) non rechargable

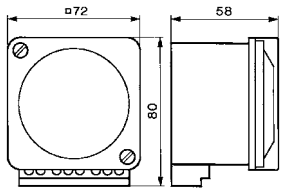
**) -25°C at limited display function

Dimensional drawings
Circuit diagrams

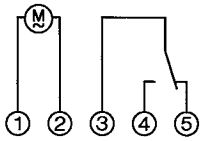
tactic 371.2, 571.2 plus



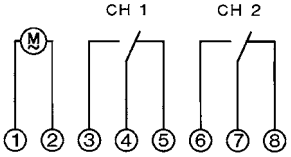
tactic 372.1, 572.1 plus



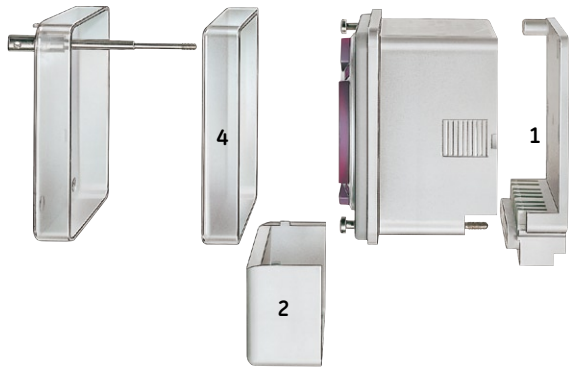
tactic 371.2, 571.2 plus

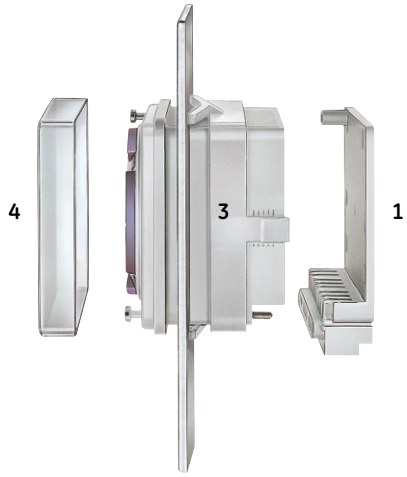


tactic 372.1, 572.1 plus



Accessories

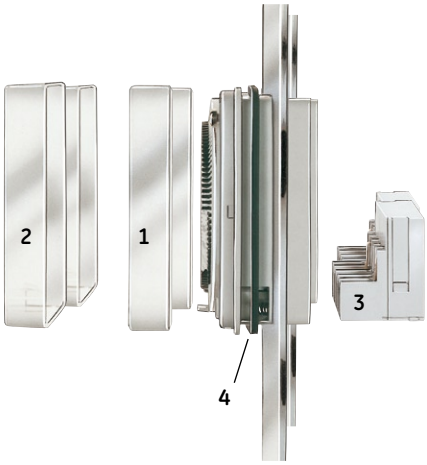




Accessories for:

- tactic 572.1 plus
- tactic 372.1 plus

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
1	base (2 channel)	L / EZ	01.96.0001.2
2	terminal cover (2 channel)	L / EZ	01.96.0043.6
3	latching frame	L / EZ	44.27.0001.4
4	glass	- / EZ	46.13.0001.4



Accessories for:

- tactic 571.2 plus
- tactic 371.2 plus
- tactic 111.2
- tactic 171.2
- tactic 211.2
- tactic 271.2

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
1	glass	L / EZ	46.13.0001.4
2	sealed glass	- / EZ	01.78.0021.6
3	installation base	- / EZ	01.79.0002.2
4	seal	- / EZ	01.45.0017.6

- **Panel-mounted or surface mounted**
- **Robust and reliable**
- **Various dimensions, round and square**
- **Latching screws or low profile plugs**

Surface mounting

- Without terminal cover
- Also available in grey
- Counting capacity 99999,99 h

Low profile plugs	**taxxo 101**

Panel mounting

- Counting capacity 99999,99 h

Low profile plugs	**taxxo 202**
Screw terminals	**taxxo 212**

Surface mounting

- Counting capacity 99999,99 h

Low profile plugs	**taxxo 100**

Panel mounting

- Central mounting
- Counting capacity 99999,99 h

Low profile plugs	**taxxo 222**
Screw terminals	**taxxo 232**

Panel mounting

- Also available in black
- Counting capacity 99999,99 h

Low profile plugs	**taxxo 102**
Screw terminals	**taxxo 112**

Panel mounting

- Central mounting
- Counting capacity 99999,99 h

Low profile plugs	**taxxo 322**
Screw terminals	**taxxo 332**

Panel mounting

- Central mounting
- Also available in black
- Counting capacity 99999,99 h

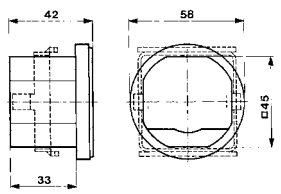
Low profile plugs	**taxxo 122**
Screw terminals	**taxxo 132**

Technical data

	taxxo 101 taxxo 100	taxxo 102 taxxo 112 taxxo 122 taxxo 132	taxxo 202 taxxo 212 taxxo 222 taxxo 232 taxxo 322 taxxo 332
Dimensions H x W x D (mm)	refer to drawing	refer to drawing	refer to drawing
Cut out (mm))	-	45 x 45	ø 50 (60) oder 45 x 45
Fitting depths (mm)	43	33	33
Weight (g) ca.	70	60	60
Nominal voltage	see below	see below	see below
Power consumption	approx. 1 VA	approx. 1 VA	approx. 1 VA
Ambient temperature	-20°C ... +55°C	-20°C ... +55°C	-20°C ... +55°C
Protection class (VDE 0633)	II	II	II
Protection type front side (DIN 40 050)	IP 20	IP 20	IP 20
Approval	EN 60335-1 EN 60335-2-26	EN 60335-1 EN 60335-2-26	EN 60335-1 EN 60335-2-26
Operation accuracy	Mains synchronous	Mains synchronous	Mains synchronous
Counting capacity	99 999,99 h	99 999,99 h	99 999,99 h
Operating indicator	yes	yes	yes
Mounting options	Mounting without terminal cover / Mounting with terminal cover	Panel mounting	Panel mounting
Type of connection	tab connector with latching screws	Latching screws / low profile plugs 6.3 mm	Latching screws / low profile plugs 6.3 mm

Dimensional drawings

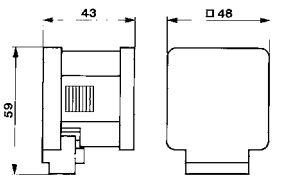
taxxo 202, 212



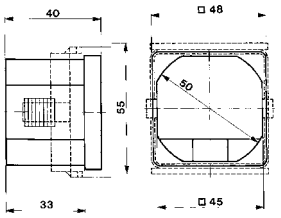
Voltage variants

-15% tolerance +10%
330 - 280 V / 50Hz
220 - 240 V/ 50Hz
110 - 120 V/ 50Hz
36 - 48 V/ 50Hz
18 - 26 V/ 50Hz
220 - 240 V/ 60Hz
110 - 127 V/ 60Hz
24 - 30 V/ 60Hz

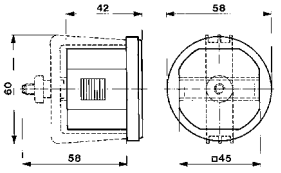
taxxo 101



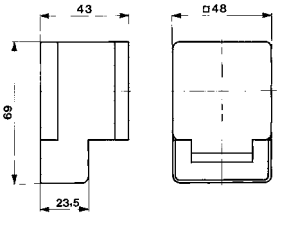
taxxo 102, 112



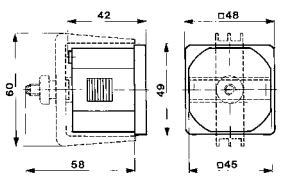
taxxo 222, 232



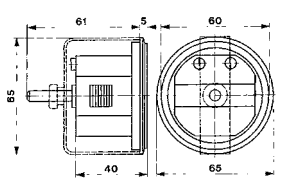
taxxo 100



taxxo 122, 132



taxxo 322, 332



- **Panel mounting or user specific mounting**
- **Robust and reliable**
- **Latching screws or low profile plugs**

Mounting – user specific

- Counting capacity 99999,99 h

Low profile plugs	**taxxo 502**
Screw terminals	**taxxo 512**

Panel mounting

- Counting capacity 99999,99 h

Low profile plugs	**taxxo 602**
Screw terminals	**taxxo 612**

Panel mounting

- Also available in black
- Counting capacity 99999,99 h

Low profile plugs	**taxxo 702**
Screw terminals	**taxxo 712**

Technical data

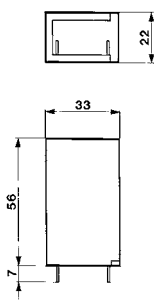
	taxxo 502 / taxxo 512	taxxo 602 / taxxo 612	taxxo 702 / taxxo 712
Dimensions H x W x D (mm)	refer to drawing	refer to drawing	refer to drawing
Cut out (mm))	-	22 x 33	50 x 25
Fitting depths (mm)	63 (70)	61 (68)	59 (66)
Weight (g) ca.	33	34	50
Nominal voltage	see below	see below	see below
Power consumption	1 VA	1 VA	1 VA
Ambient temperature	-20°C ... +55°C	-20°C ... +55°C	-20°C ... +55°C
Protection class (VDE 0633)	II	II	II
Protection type front side (DIN 40 050)	IP 20	IP 20 (IP 50 with seal refer to accessories)	IP 20 (IP 50 with seal refer to accessories)
Approval	EN 60335-1 EN 60335-2-26	EN 60335-1 EN 60335-2-26	EN 60335-1 EN 60335-2-26
Operation accuracy	Mains synchronous	Mains synchronous	Mains synchronous
Counting capacity	99 999,99 h	99 999,99 h	99 999,99 h
Operating indicator	yes	yes	yes
Mounting options	Flush mounting	Flush mounting	Flush mounting
Type of connection	Latching screws / low profile plugs 6.3 mm	Latching screws / low profile plugs 6.3 mm	Latching screws / low profile plugs 6.3 mm

Dimensional drawings

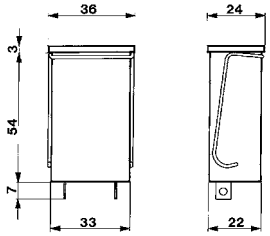
Voltage variants

-15% tolerance +10%
330 - 280 V / 50Hz
220 - 240 V/ 50Hz
110 - 120 V/ 50Hz
36 - 48 V/ 50Hz
18 - 26 V/ 50Hz
220 - 240 V/ 60Hz
110 - 127 V/ 60Hz
24 - 30 V/ 60Hz

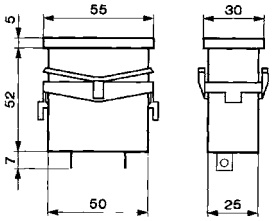
taxxo 502



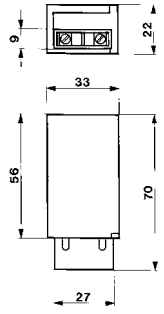
taxxo 602



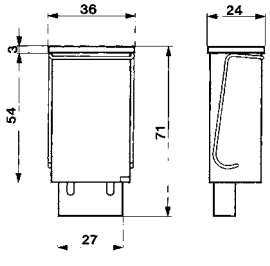
taxxo 702



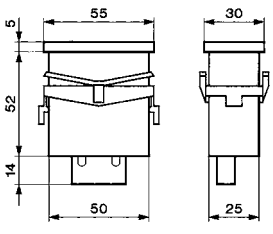
taxxo 512



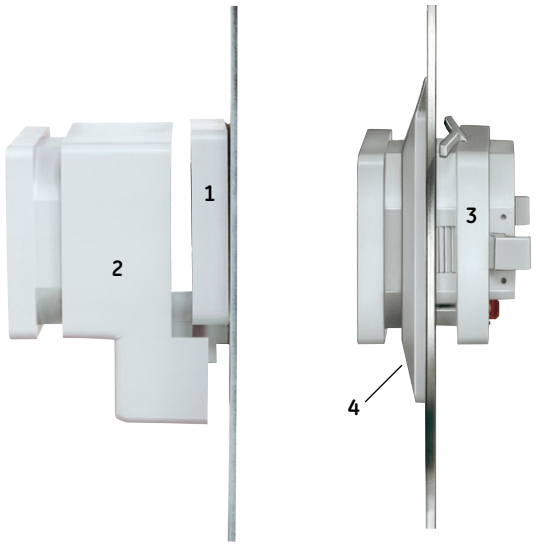
taxxo 612



taxxo 712



Accessories



Accessories for:

- taxxo 100

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
1	base	L / EZ	15.92.0021.4
2	terminal cover	L / EZ	50.12.0001.4

Accessories for:

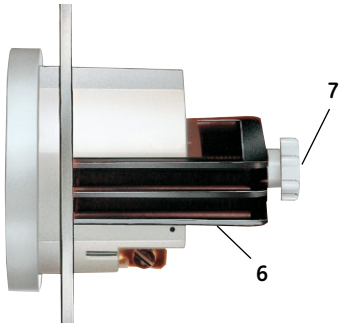
- taxxo 102
- taxxo 112

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
3	latch-on frame	L / EZ	15.27.0011.4
4	panel 55 x 55	- / EZ	05.15.0065.6
	or:		
	panel 72 x 72	- / EZ	16.26.0006.4
	seal 72 x 72	- / EZ	11.24.0008.8

Accessories for:

- taxxo 202
- taxxo 212

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
5	latch-on frame	L / EZ	15.27.0011.4

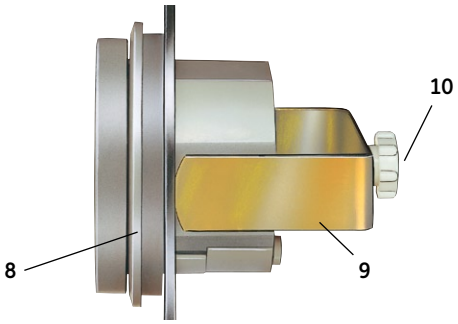


Accessories for:

- taxxo 222
- taxxo 232

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
6	central bracket	L / EZ	15.28.0002.4
7	knurled nut	L / EZ	17.23.0001.4

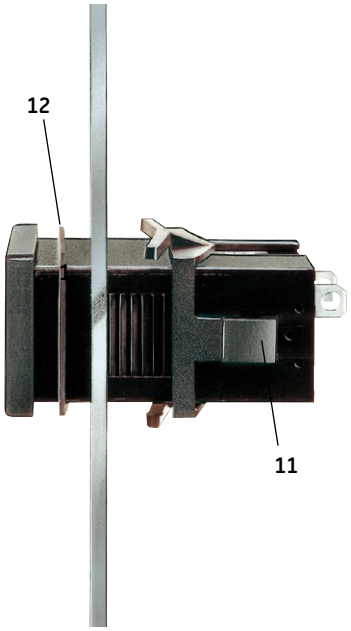
Accessories



Accessories for:

- taxxo 322
- taxxo 332

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
8	panel ø 60	L / EZ	05.15.0064.6
9	central bracket	L / EZ	10.28.0017.4
10	knurled nut	L / EZ	17.23.0001.4



Accessories for:

- taxxo 612

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
11	spring bracket (see illustration taxxo 602+612)	L / EZ	05.20.0026.6
12	seal	- / EZ	11.24.0007.8

Accessories for:

- taxxo 712

No.	Designation	L = standard comp. EZ = spare parts/ accessory	Art.-No.
11	latch-on frame	L / EZ	14.27.0002.4
12	seal	- / EZ	14.24.0001.5

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