Datasheet

RET B
Battery powered room thermostat

Features

The RET B is a battery powered room thermostat that combines the benefits of a conventional analogue setting knob and an LCD display to show temperature and thermostat status. All models in the range are available in hard-wired and wireless versions.

Styled on the RMT and RET thermostat range, the RET B provides accurate electronic temperature control without the need for an external power supply. This makes it an ideal solution for system upgrades when replacing conventional electro-mechanical two-wire thermostats.

The RET B utilises a micro-processor which, in addition to providing accurate temperature control, also drives a small LCD display. During normal operation, this LCD displays actual room temperature and changes momentarily to show set temperature whenever the setting dial is moved. The LCD is also used to display output relay state and to indicate when the batteries require changing.

The micro-processor also provides other added features not normally found in such thermostats.

These features include:

- Selection of either on/off or chrono-proportional control
- Cycle rate adjustment if chrono-proportional control is selected
- Selection of heating or cooling control
- Selection of compressor delay timer if cooling operation is selected
- Selection of Fahrenheit or Centigrade scaling

Common Features

- Battery powered for ease of installation
- Ideal replacement for conventional 2-wire thermostat
- Voltage free outputs, can switch mains and low voltage control circuits
- Micro-processor control provides added functionality
- Analogue setting for ease of use
- LCD display shows temperature and thermostat status
- Suitable for heating or cooling systems
- Available in hard-wired and RF versions

The range comprises three models:

RET B
Basic thermostat with Analogue setting and LCD display.

RET B-LS
Thermostat with analogue setting and LCD display, plus a manual Auto/Off switch to turn the thermostat output off during periods when it's operation is not required. When set to Off the LCD clearly shows that the thermostat has been turned off.

RET B-NSB
Thermostat with analogue setting and LCD display, plus a manual Day/Night switch which, when set to Day position, controls at the temperature set on the dial. When Night is selected, the thermostat controls at a temperature 4°C lower than the set temperature.

Installer Settings

Thermostat configured for heating operation

Sw No.	Setting	Function
1		Heat
2		On/Off
3		Not active
4		°C (change for °F)
Or		
1		Heat
2		Chrono
3		3 cycles per hour
4		°C (change for °F)
Or		
1		Heat
2		Chrono
3		6 cycles per hour
4		°C (change for °F)

Thermostat configured for cooling operation

Sw No.	Setting	Function
1		Cool
2		No compressor delay
3		Not active
4		°C (change for °F)
Or		
1		Cool
2		Compressor delay active
3		2 min compressor delay
4		°C (change for °F)
Or		
1		Cool
2		Compressor delay active
3		4 min compressor delay
4		°C (change for °F)

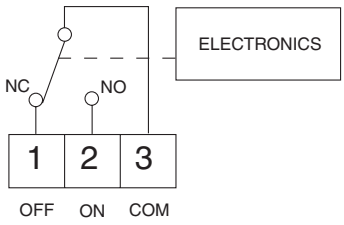
Datasheet — RET B battery powered room thermostat

Specification & Ordering Details

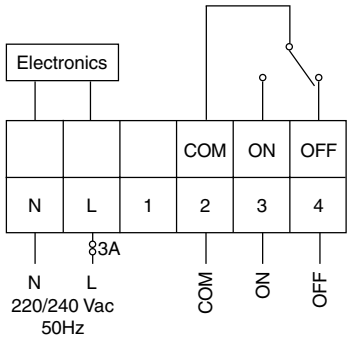
Features	RET B (RF)	RET B-LS (RF)	RET B-NSB (RF)
Hard wired - Code number	087N725100	087N725500	087N725900
Wireless (RF) - Code number	087N727000	087N727000	087N727400
Temperature range	5 - 30°C		
Setting knob & LCD display	●	●	●
Auto / Off selector switch		●	
Day / Night selector switch (4°C set-back)			●
Low battery indicator	●	●	●
Contact rating (hard-wired model)	10 - 230 Vac, 3 (1) A		
Contact Type (hard-wired model)	SPDT Type 1B		
Transmitter frequency (RF model)	433.92 MHz		
Transmitter range (RF model)	30m max		
Switching differential	±1°C		
Power supply	2 x AA/MN1500 alkaline batteries		
Dimensions (mm)	85 wide x 86 high x 42 deep		
Receiver (RF models) Features	**RX1**	**RX2**	**RX3**
Order codes	087N747600	087N747700	087N747800
Single zone receiver	●		
Two zone receiver		●	
Three zone receiver			●
Power supply	230 ± 15% Vac, fused at 3A		
Contact details	1-SPDT	1-SPDT, 1-SPST	1-SPDT, 2SPST
Contact rating	24-230 Vac, 3 (1) A		
Dimensions (mm)	138 wide x 88 high x 32 deep		

Wiring

RET B, RET-B LS, RET-B-NSB



RX1



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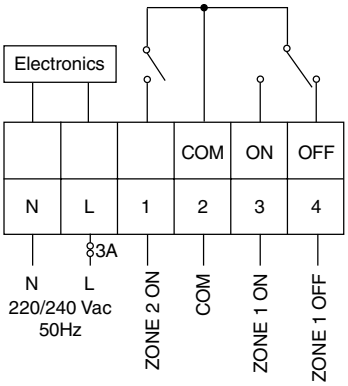
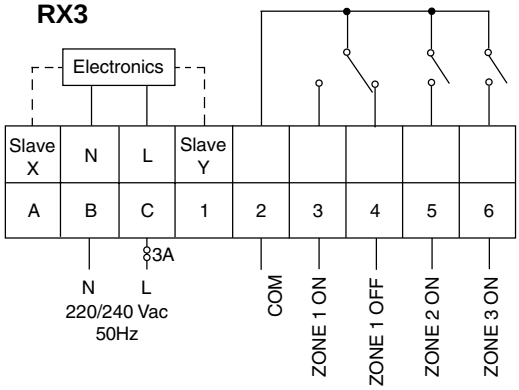


RX3



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RET B(RF), RET LS(RF) & RET NSB(RF)

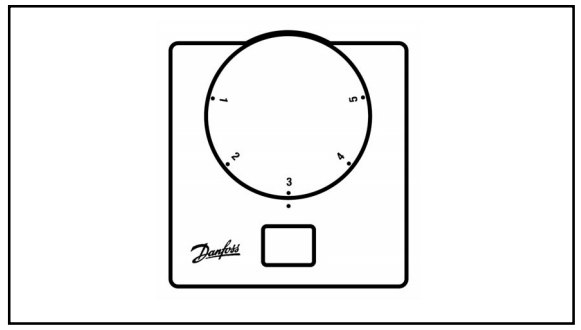


Fig.1

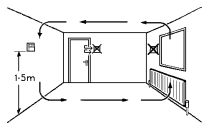


Fig.2

Fig.3

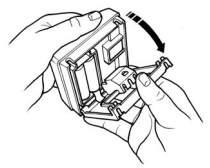


Fig.4

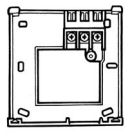


Fig.5

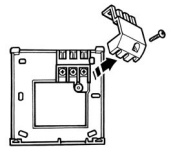


Fig.6

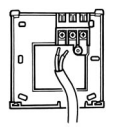


Fig.7

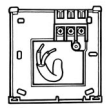


Fig.8

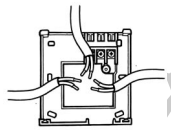


Fig.9

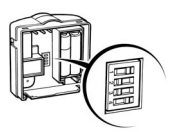


Fig.10

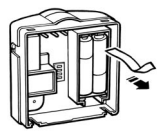


Fig.11

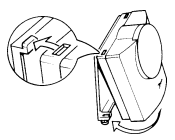


Fig.12

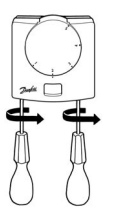


Fig.13

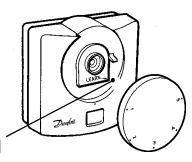


Fig.14

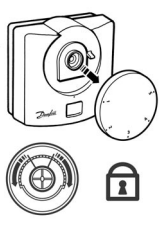
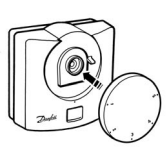


Fig.15



GB - Installation Instructions

Specification

Features	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Contact rating (excluding North America)	10 - 230 Vac, 3 (1) A
Contact rating (North America)	10 - 24Vac, 50/60Hz, 3(1)A
Temperature Accuracy	±1°C
Contact Type	SPDT Type 1B
Transmitter frequency (RF models)	433.92 MHz
Transmitter range (RF models)	30m max
Power Supply	2 x AA/MN1500 alkaline batteries
Control Pollution Situation	Degree 2
Rated Impulse Voltage	2.5 kV
Designed to meet	BS EN 60730-2-9
Ball Pressure Test	75°C
Max. Ambient Temperature	45°C
Dimensions (mm)	85 wide x 86 high x 42 deep

Important note RF products: Ensure that there are no large metal objects, such as boiler cases or other large appliances, in line of sight between the transmitter and receiver as these will prevent communication between thermostat and receiver.

Mounting (see Fig.1-4)

Thermostat Wiring (see Fig.16) - not RF models

Connections (see Fig.5-8) - not RF models

Installer Settings (Fig.9)

Heating

Sw No.	Setting	Function
1	☐	Heat
2	☐	On/Off
3	☐	Not active
4	☐	°C (change for °F)
Or 1	☐	Heat
2	☐	Chrono
3	☐	3 cycles per hour
4	☐	°C (change for °F)
Or 1	☐	Heat
2	☐	Chrono
3	☐	6 cycles per hour
4	☐	°C (change for °F)

Cooling

Setting	Function
☐	Cool
☐	No compressor delay
☐	Not active
☐	°C (change for °F)
☐	Cool
☐	Compressor delay active
☐	2 min compressor delay
☐	°C (change for °F)
☐	Cool
☐	Compressor delay active
☐	4 min compressor delay
☐	°C (change for °F)

Mounting (continued) (Fig.10-12)

Receiver Wiring (RF versions only) (Fig.18-19)

Commissioning (RF versions only)

Step 1 Remove dial, press & hold LEARN button for 3 seconds (located under setting dial) **(Fig.13)**
Do not replace the setting dial yet

NOTE: Thermostat now transmits continuously for 5 minutes

Step 2 RX1
Press and hold buttons **PROG** and **CH1** until green light flashes **(Fig.17)**

Step 3 RX2/RX3
For RX2 or RX3 repeat steps 1 and 2 for each thermostat and channel

Step 4 Replace thermostat setting dial **(Fig.15)**

Locking & Limiting (Fig.14-15)

F - Instructions d'installation

Specifications

Caractéristiques	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Caractéristique de contact	10 - 230 Vca, 3 (1) A
Précision de la température	±1°C
Type de contact	SPDT Type 1B (inverseur)
Fréquence de fonctionnement	433.92 MHz
Portée émetteur	30m max
Alimentation	2 piles alcalines x AA / MN1500
Niveau de recyclage	Degré 2
Tension de choc nominale	2.5 kV
Normes de fabrication	BS EN 60730-2-9
Test de pression à bille	75°
Température ambiante maximale	45°C
Dimensions (mm)	85 larg x 86 haut x 42 épaiss

Remarque importante pour version sans fil (RF): Veiller à ce qu'aucun gros objet métallique (caisson de chaudière ou autres gros appareils domestiques) ne fasse obstacle aux communications entre le thermostat et le récepteur.

Montage (Fig.1-4)

Câblage (Fig.16) - versions câblées seulement

Connexions (Fig.5-8) - versions câblées seulement

Réglages d'installateur (Fig.9)

Chauffage

Sw No.		Fonction
1	☐	Chauffage
2	☐	On/off
3	☐	Non actif
4	☐	°C (changer pour °F)
Ou 1	☐	Chauffage
2	☐	Chrono
3	☐	3 cycles par heure
4	☐	°C (changer pour °F)
Ou 1	☐	Chauffage
2	☐	Chrono
3	☐	6 cycles par heure
4	☐	°C (changer pour °F)

Froid

	Fonction
☐	Froid
☐	Pas de temporisation
☐	Non actif
☐	°C (changer pour °F)
☐	Froid
☐	Temporisation compresseur
☐	Temporisation 2 min
☐	°C (changer pour °F)
☐	Froid
☐	Temporisation compresseur
☐	Temporisation 4 min
☐	°C (changer pour °F)

Assemblage du thermostat (Fig.10-12)

Câblage (Fig.18-19) - versions câblées seulement

Instructions (versions câblées) (Fig.11-13)

Etape 1 Pressez la touche LEARN pendant 3 secondes (situé sous le cadran de réglage) Fig.13
Ne pas remplacer le cadran de réglage pour l'instant

Remarque : Le thermostat transmet maintenant en continu pendant 5 minutes.

Etape 2 **RX1** - Pressez simultanément les touches PROG et CH1 pendant 3 secondes

Etape 3 **RX2 / RX3** - Pour RX2 ou RX3 répétez 1 et 2 pour chaque thermostat et canal correspondant

Etape 4 Remplacer le cadran de réglage. Fig.15

Verrouillage & Limitation (Fig.14-15)

D - Installationsanweisung

Technische Daten

Funktionsbeschreibung	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Schaltleistung	10 - 230 V ac, 3 (1) A
Temperaturgenauigkeit	±1°C
Schaltertyp	Umschaltkontakt / potentialfrei / SPDT
Betriebsfrequenz	433.92 MHz
Reichweite des Senders	Max. 30 m
Stromversorgung	2 x AA/MN1500 Alkaline-Batterien
Emissionswerte	Grad 2
Nennspannungsimpuls	2.5 kV
Bauweise	BS EN 60730-2-9
Verformbarkeit unter Druck	75°C
Max. Umgebungstemperatur	45°C
Abmessungen (B x H x T)	85 x 86 x 42 mm
Farbe	RAL 9010

Wichtiger Hinweis RF: Achten Sie darauf, dass sich zwischen Thermostat und Empfänger keine größeren Metallobjekte wie Boilergehäuse oder andere große Geräte befinden, da ansonsten die Kommunikation zwischen dem Thermostaten und dem Empfänger gestört werden kann.

Befestigung (Fig.1-4)

Verkabelung (Fig.16) - (nur bei Kabelversion)

Anschlüsse (Fig.5-8) - (nur bei Kabelversion)

Einstellungen (Fig.9)

Heizen

Sw No.		Funktion
1	☐	Wärme
2	☐	Ein/Aus
3	☐	Nicht aktiv
4	☐	° C (in °F ändern)
Oder 1	☐	Wärme
2	☐	Zeitmesser
3	☐	3 Zyklen pro Stunde
4	☐	° C (in°F ändern)
Oder 1	☐	Wärme
2	☐	Zeitmesser
3	☐	6 Zyklen pro Stunde
4	☐	° C (in °F ändern)

Kühlen

	Funktion
☐	Kühlung
☐	Keine Kompressorverzögerung
☐	Nicht aktiv
☐	° C (in °F ändern)
☐	Kühlung
☐	Kompressorverzögerung aktiv
☐	2 min. Kompressorverzögerung
☐	° C (in °F ändern)
☐	Kühlung
☐	Kompressorverzögerung aktiv
☐	4 min. Kompressorverzögerung
☐	° C (in °F ändern)

Montage des Thermostats (Fig.10-12)

Verkabelung (Fig.18-19) - (nur bei Kabelversion)

Inbetriebnahme Instruktion (Fig.11-13)

Schritt 1 Den unter der Einstellscheibe angebrachten Knopf LEARN (Abb. 13) für 5 Sekunden gedrückt halten.
Die Einstellscheibe bitte noch nicht einsetzen.

Anmerkung: Thermostat sendet nun 5 Minuten lang ständig.

Schritt 2 **RX1** - Knöpfe PROG und CH1 für 5 Sekunden gedrückt halten.

Schritt 3 **RX2 / RX3** - Für RX2 oder RX3 Schritt 1 bis 2 für jeden Thermostat wiederholen.

Schritt 3 Einstellscheibe einsetzen (Abb.15).

Sperren & Begrenzen (Abb.14-15)

ES - Instrucciones de instalación

Especificaciones

Características	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Rango de tensión (excepto Norteamérica)	10 – 230 V.c.a., 3 (1) A
Rango de tensión (Norteamérica)	10 - 24 Vac, 50/60Hz, 3(1)A
Precisión de temperatura	±1°C
Contacto	SPDT tipo 1B
Frecuencia de funcionamiento	433.92 MHz
Campo de acción del transmisor	30m max
Alimentación	2 pilas alcalinas 1,5 V.
Control antipolución	Grado 2
Rango impulsos de tensión	2.5 kV
Normativa	BS EN 60730-2-9
Test prueba de bola	75°C
Máx. temperatura ambiente.	45°C
Dimensiones (mm)	Ancho 85 X Alto 86 X Profundo 42.

Nota importante RF: Asegurar que la comunicación entre el transmisor y el termostato no haya quedado obstaculizada por objetos grandes metálicos tales como calderas u otros aparatos grandes ya que estos impedirían la comunicación entre el termostato y el receptor.

Montaje (Fig.1-4)

Cableado (Fig.16) - solo versiones de conexion permanente

Conexiones (Fig.5-8) - solo versiones de conexion permanente

Ajustes del instalador (Fig.9)

Calefacción

Sw No.		Función
1	☐	Calefacción
2	☐	On/Off
3	☐	Inactivo
4	☐	ºC(cambiar para ºF)
Ó 1	☐	Calefacción
2	☐	Crono
3	☐	3 ciclos / hora
4	☐	ºC(cambiar para ºF)
Ó 1	☐	Calefacción
2	☐	Crono
3	☐	6 ciclos / hora
4	☐	ºC(cambiar para ºF)

Refrigeración

	Función
☐	Refrigeración
☐	Sin retraso del compresor
☐	Inactivo
☐	ºC(cambiar para ºF)
☐	Refrigeración
☐	Retraso del compresor
☐	2 min. de retraso
☐	ºC(cambiar para ºF)
☐	Refrigeración
☐	Retraso del compresor
☐	4 min. de retraso
☐	ºC(cambiar para ºF)

Montaje de componentes del crono (Fig.10-12)

Cableado (Fig.18-19) - solo versiones de conexion permanente

Instrucciones de puesta en marcha (Fig.11-13)

Paso 1 Pulsar y mantener pulsados LEARN durante 3 segundos (situado debajo del disco de fijación) Fig.13
No vuelva a colocar el disco de fijación todavía.

Nota: el termostato transmite ahora de forma continua durante 5 minutos

Paso 2 **RX1** - Pulsar y mantener pulsados PROG y CH1 durante 3 segundos

Paso 3 **RX2 / RX3** - Repetir paso 1 y 2 por cada termostato y canal

Paso 4 Vuelva a colocar el disco de fijación (Fig.15)

Bloquear y Limitar (Fig.14-15)

Fig.16

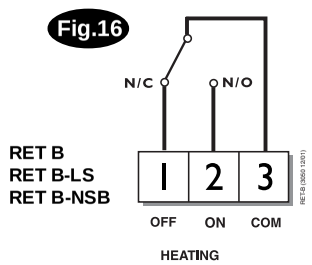


Fig.17

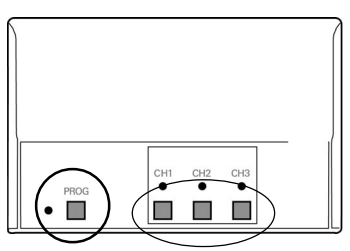


Fig.18

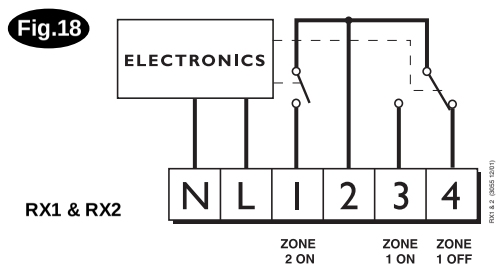
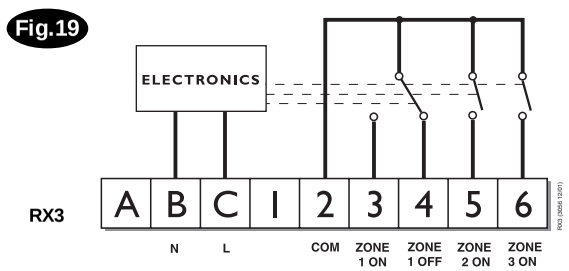


Fig.19



DK - Instruktions vejledning

Specifications

Tekniske data	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Kontaktbelastning	10 - 230 Vac, 3 (1) A
Temperaturnøjagtighed	±1°C
Kontakt type	SPDT Type 1B
Sendefrekvens	433.92 MHz
Rækkevidde (se nedenstående note)	30m max
Forsyning	2 x AA/MN1500 alkaline batterier
Omgivelser	Grad 2
Nominel Impuls Spænding	2.5 kV
Opfylder	BS EN 60730-2-9
Kugle tryk test	75°C
Max. Omgivelsestemperatur	45°C
Dimensioner (mm)	85 (h) x 86 (b) x 42 (d)

Vigtig note ved RF produkter: Vær opmærksom på at større metal genstande, som kedler eller andre store elektriske maskiner, placeret mellem sender og modtager kan formindske modtage og sende forholdene og evt. forhindre kommunikationen mellem termostat og modtager

Montering (Fig.1-5)

Ledningsføring (Fig.16) - (ledningstrukne versioner)

Opkoblinger (Fig.5-8) - (ledningstrukne versioner)

Montørindstillinger (Fig.9)

Opvarmning **Køling**

Sw No.		Function		Funktion
1	□	Varme	□	Køling
2	□	On/Off	□	Ingen kompressor forsinkelse
3	□	Ikke aktiv	□	Ikke aktiv
4	□	°C (omskifter til °F)	□	°C (omskifter til °F)
Og 1	□	Varme	□	Køling
2	□	Crono	□	Kompressor forsinkelse indkoblet
3	□	3 perioder per time	□	2 min kompressor forsinkelse
4	□	°C (omskifter til °F)	□	°C (omskifter til °F)
Og 1	□	Varme	□	Køling
2	□	Crono	□	Kompressor forsinkelse indkoblet
3	□	6 perioder per time	□	4 min kompressor forsinkelse
4	□	°C (omskifter til °F)	□	°C (omskifter til °F)

Samling af termostaten (Fig.10-12)

Ledningsføring (Fig.18-19) - (ledningstrukne versioner)

Aktiveringsinstruktioner (Fig.11-13)

Trin 1 Tryk i 3 sekunder på knappen LEARN Placeret under indstillingsknappen **(Fig.13)**
Sæt ikke indstillingsknappen på endnu
Noter: Termostaten transmiterer nu kontinuerligt i 5 minutter
Trin 2 **RX1** - Tryk knapperne PROG og CH1 ind i 3 sek.
Trin 3 **RX2 / RX3** - For RX2 og RX3 gentag trin 1 og 2 for hver termostat og kanal.
Trin 4 Replace the setting dial **(Fig.15)**

Låsning og begrænsning (Fig.14-15)

NL - Installatie handleiding

Technische specificaties

Omschrijving	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Contactbelasting	10-230Vac, 3 (1) A
Nauwkeurigheid	±1°C
SPDT (potentiaalvrij omschakelcontact)	SPDT Type 1B
Zender frequentie (RF modellen)	433.92 MHz
Zender bereik (RF modellen)	30m max
Batterijen	2 x AA/MN1500 Alkaline
Milieu-regel situatie	Niveau 2
Nominale piekspanning	2,5 kV
Voldoet aan	BS EN 60730-2-9
Kogeldruk test	75°C
Max. omgevingstemperatuur	45°C
Afmetingen (bxhxd)	85 x 86 x 42 mm

Belangrijk voor RF modellen: Let er op dat zich geen grote metalen voorwerpen, zoals ketels of andere grote apparaten, in de gezichtslijn tussen thermostaat en ontvanger bevinden, aangezien hierdoor de communicatie tussen thermostaat en ontvanger wordt verhinderd.

Montage (Fig.1-5)

Aansluitingen (Fig.16) - niet bij RF modellen

Bedrading (Fig.5-8) - niet bij RF modellen

Instellingen (Fig.9)

Verwarmen **Koelen**

Sw No.		Funktie		Funktie
1	□	Verwarmen	□	Koelen
2	□	Aan/uit regeling	□	Geen anti-pendeltijd compressor
3	□	Ongebruikt	□	Ongebruikt
4	□	°C (omzetten voor °F)	□	°C (omzetten voor °F)
Of 1	□	Verwarmen	□	Koelen
2	□	Chronoproportionele regeling	□	Anti-pendeltijd compressor aktief
3	□	Cyclustijd 20 min	□	Anti-pendeltijd 2 min.
4	□	°C (omzetten voor °F)	□	°C (omzetten voor °F)
Of 1	□	Verwarmen	□	Koelen
2	□	Chronoproportionele regeling	□	Anti-pendeltijd compressor aktief
3	□	Cyclustijd 10 min.	□	Anti-pendeltijd 4 min.
4	□	°C (omzetten voor °F)	□	°C (omzetten voor °F)

Plaatsen van de thermostaat (Fig.10-12)

Aansluiting van ontvanger (Fig.18-19) - alleen bij RF modellen

Inbedrijfstelling van RF modellen (Fig.11-13)

Stap 1 Knop LEARN 3 seconden ingedrukt houden (bevindt zich onder instelschijf) Fig.13
De instelschijf nog niet terugzetten
Opmerking: thermostaat zendt nu gedurende 5 minuten een continu signaal uit
Stap 2 **RX1** - Knop PROG en CH1 3 seconden ingedrukt houden
Stap 3 RX2 / RX3 - Voor RX2 of RX3 herhaal stap 1 en 2 voor elke thermostaat en kanaal
Stap 4 De instelschijf terugzetten (Fig.15)

Blokkeren & Begrenzen (Fig.14-15)

PL - Instrukcja Instalatora

Dane techniczne

Dane techniczne	RET B (RF) / RET B-LS (RF) / RET B-NSB (RF)
Obciążalność styków	10 - 230 Vac, 3 (1) A
Dokładność regulacji	±1°C
Rodzaj przekaźnika	SPDT Type 1B
Częstotliwość komunikacji	433.92 MHz
Zasięg nadajnika (zob. uwagę niżej)	30m max
Zasilanie	2 x AA/MN1500 baterie alcaliczne
Doktadność regulacji	Degree 2
Ochrona przepięciowa	2.5 kV
Zgodne z wymaganiami	BS EN 60730-2-9
Odporność temperaturowa	75°C
Maksymalna temperatura otoczenia	45°C
Wymiary (mm)	85 szer. x 86 wys. x 42 głęb

Ważne - dotyczy produktów RF: Upewnij się, że między nadajnikem i odbiornikiem nie znajdują się żadne duże metalowe obiekty, takie jak np. kocioł. Ich wystąpienie może spowodować zakłócenia w komunikacji.

Montaż (zob. rys. 1-5)

Podłączenie przewodów (zob. rys. 16) - nie dot. modeli RF

Schematy podłączeń elektrycznych (zob.rys.5-8) - nie dot. modeli RF

Ustawienia przy instalacji (rys.9)

Tryb - grzanie **Chłodzenie**

Sw No.		Działanie		Działanie
1	□	Grzanie	□	Chłodzenie
2	□	Wł. / Wył.	□	Bez opóźnienia
3	□	Nieaktywny	□	Nieaktywny
4	□	° C (zmiana na °F)	□	° C (zmiana na °F)
Albo 1	□	Grzanie	□	Chłodzenie
2	□	Chrono	□	opóźnienie włączenia agregatu chłodzącego 2 min
3	□	3 cykli na godz	□	opóźnienie włączenia agregatu chłodzącego
4	□	° C (zmiana na °F)	□	° C (zmiana na °F)
Albo 1	□	Grzanie	□	Chłodzenie
2	□	Chrono	□	opóźnienie włączenia agregatu chłodzącego
3	□	6 cykli na godz	□	4 min opóźnienie włączenia agregatu chłodzącego
4	□	° C (zmiana na °F)	□	° C (zmiana na °F)

Montaż termostatu (rys.10-12)

Podłączenie przewodów (zob. rys..18-19) - nie dot. modeli RF

Instrukcja (rys.11-13)

Krok 1 Przyciśnij na 3 s jednocześnie przycisk LEARN (znajduje się pod panelem regulacyjnym) Rys.13
Nie zamykaj jeszcze panelu regulacyjnego
Uwaga: termostat wysyła obecnie sygnał bez przerwy przez 5 minut
Krok 2 **RX1** - Przyciśnij na 3 s przyciski PROG i CH1
Krok 3 **RX2 / RX3** - Powtórz 1 i 2 dla każdego współpracującego termostatu i kanału
Krok 4 Zamknij panel regulacyjny

Zamknięcie i ograniczenie (Rys.14-15)

Fig.16

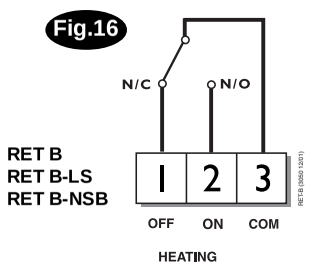


Fig.17

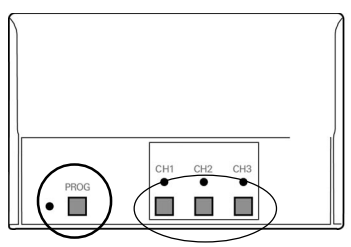


Fig.18

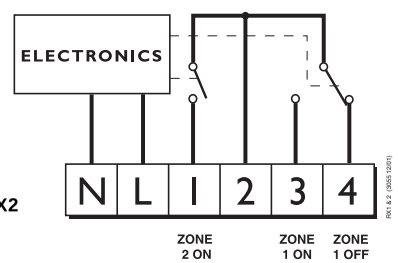
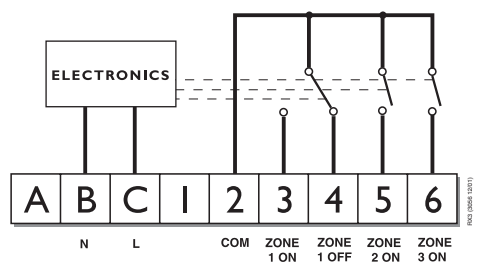


Fig.19



RET B(RF), RET LS(RF) & RET NSB(RF)

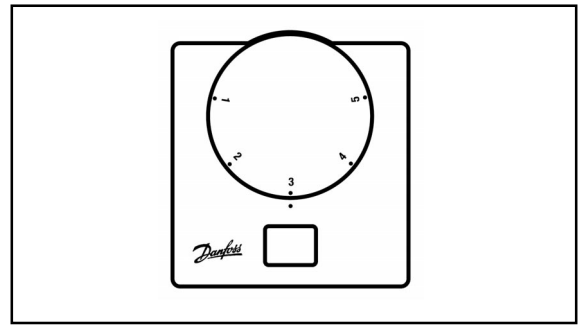


Fig.1

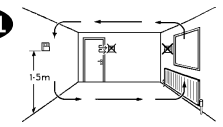


Fig.2

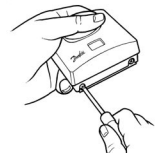


Fig.3

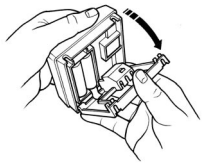


Fig.4

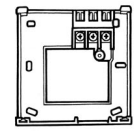


Fig.5

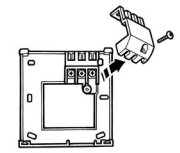


Fig.6

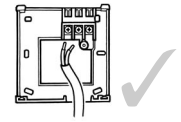


Fig.7

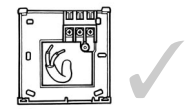


Fig.

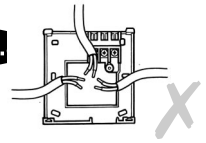


Fig.9

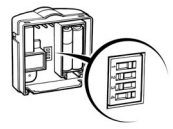


Fig.10

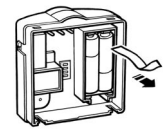


Fig.11

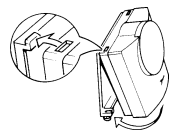


Fig.12

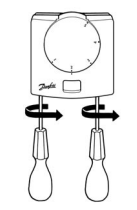


Fig.13

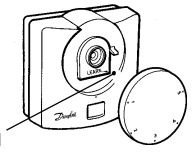


Fig.14

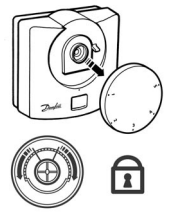


Fig.15