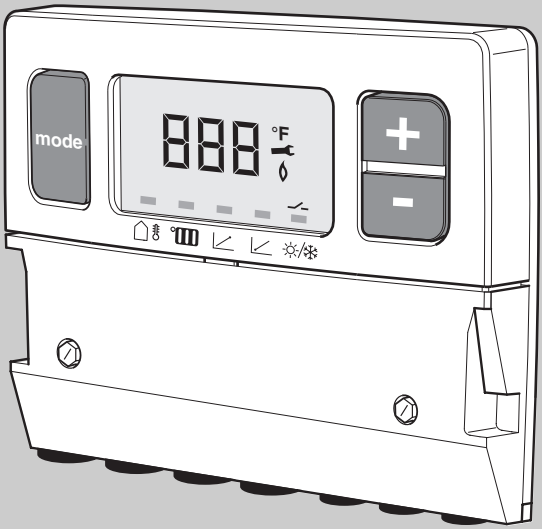
Installation and user manual
Guide d'installation et d'utilisation
Instrucciones de montaje y servicio

Controller
Commande
Controller



modulating outdoor reset control AM10

commande modulante extérieure de réinitialisation AM10

modulating outdoor reset control AM10

for the user
Read carefully before installation and use

pour l'utilisateur
Lire attentivement avant l'installation ou l'utilisaton

para el usuario
Read carefully before installation and use

Buderus

7218 6100 (05/2007) US/CA/MX

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1 Installation manual

1.1 Description of Module

Product description

The AM10 is a modulating control for Buderus boilers equipped with the EMS bus. It sets the supply water temperature based on outdoor temperature. The boiler fires, runs and modulates based on the information received from the AM10, and the delta temperature between supply and return.

An ON/OFF signal from third party room thermostats or zone controllers is used to communicate a heat demand.

The AM10 offers warm weather shutdown (WWSD) when the outdoor temperature rises above a custom settable temperature.

To control and stage two boilers, combine the AM10 with a CM10 module (see page 8).

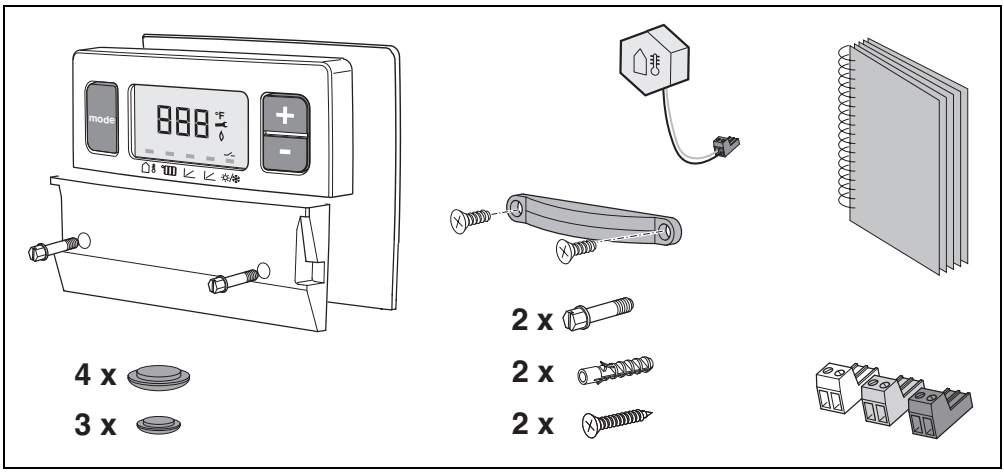

Fig. 1 Set includes

1.2 Outdoor reset

Outdoor reset is a smart way to economically control space heating based on outdoor temperature. It functions based on the fact that the colder the weather the greater the heat loss of a structure, and the higher the supply water temperature needed to heat the house. On a warmer day with smaller losses a lower water temperature will be able to heat the house.

Outdoor reset is the preferred control when using multiple zones, as the boiler supply water temperature is not dictated by a master or largest zone, but solely based on the heat loss of the structure.

Heating curve

The AM10 has a built in linear heating curve that sets the supply water temperature in relation to the outdoor temperature.

The maximum supply water temperature set on the boiler dial works as a high limit. The boiler will follow the heating curve in the AM10 up to the high limit.

	Outside temperature design day	Supply temperature
Default	14 °F	167 °F
Example 1	0 °F	170 °F
Example 2	-10 °F	175 °F
Example 3	-20 °F	180 °F

1.3 Mounting of the AM10

The AM10 module should be mounted inside a GB142 boiler above the controls.

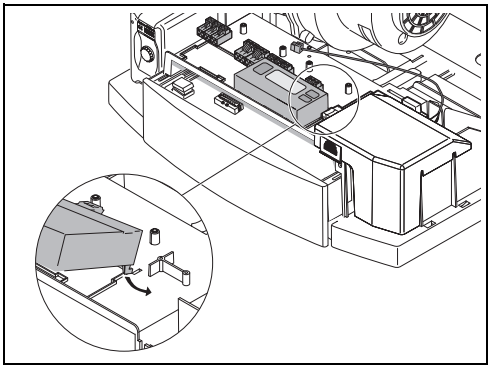

Fig. 2 Installation

EMS-Bus

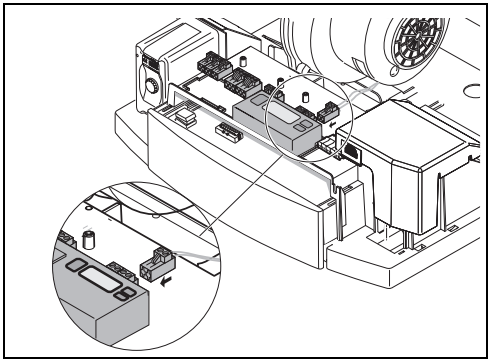

Fig. 3 EMS-Bus

Thermostat

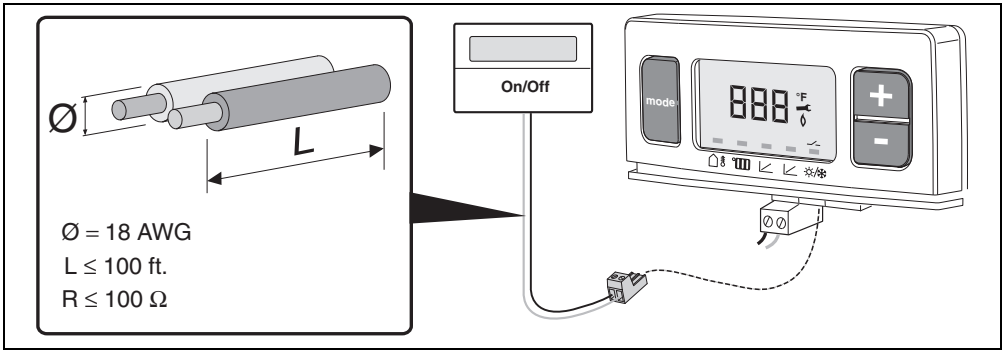

Fig. 4 Thermostat

Outdoor sensor

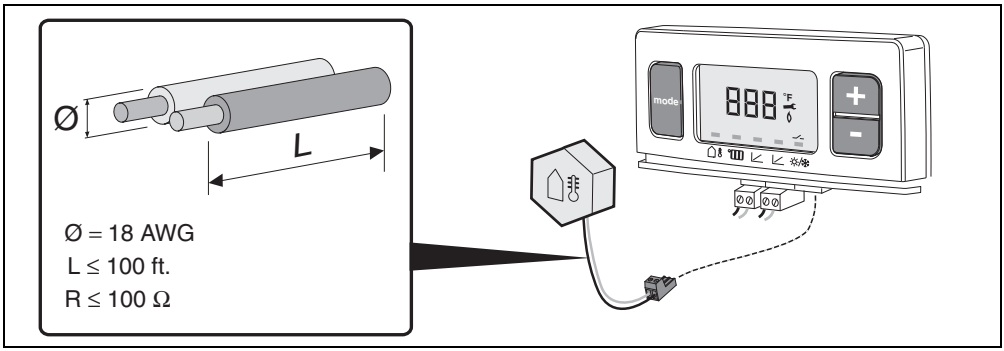

Fig. 5 Outdoor sensor

[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]
-40	336.5	5	72.9	50	19.9	95	6.5
-31	242.6	14	55.3	59	15.7	104	5.3
-22	177.0	23	42.3	68	12.5	113	4.4
-13	130.4	32	32.7	77	10.0	122	3.6
-4	97.1	41	25.4	86	8.1		

Table 1 Sensor resistance table

Positioning of the outdoor sensor

For best performance the outdoor sensor is to be positioned where the sun can never reach it. Mount only on a North facing wall of the building out of the sunlight, with at least 1 foot above snow line. Keep the sensor away from heat sources like dryer, water heater, or boiler vents, windows, etc.

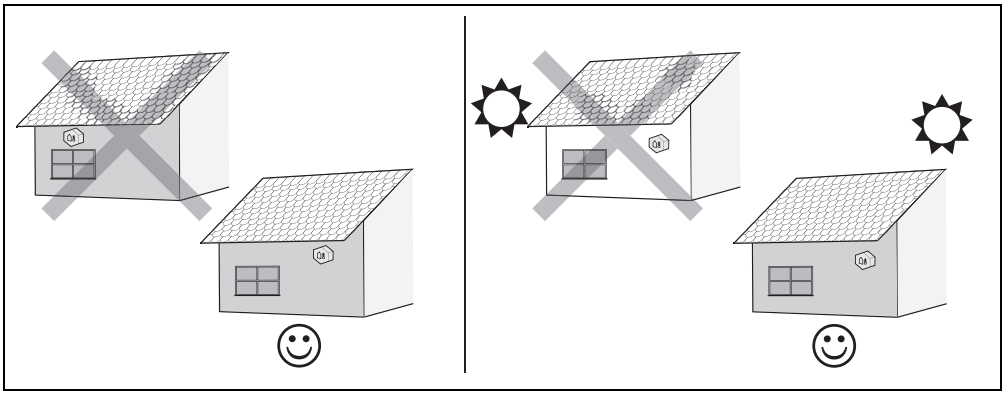

Fig. 6 Sensor location

1.4 Single Boiler Control

To equip a single GB142 boiler with outdoor reset control:
Required items:

– ON/OFF thermostat for every heating zone with individual zone pump or zone valve
– Pump relay
– Wiring

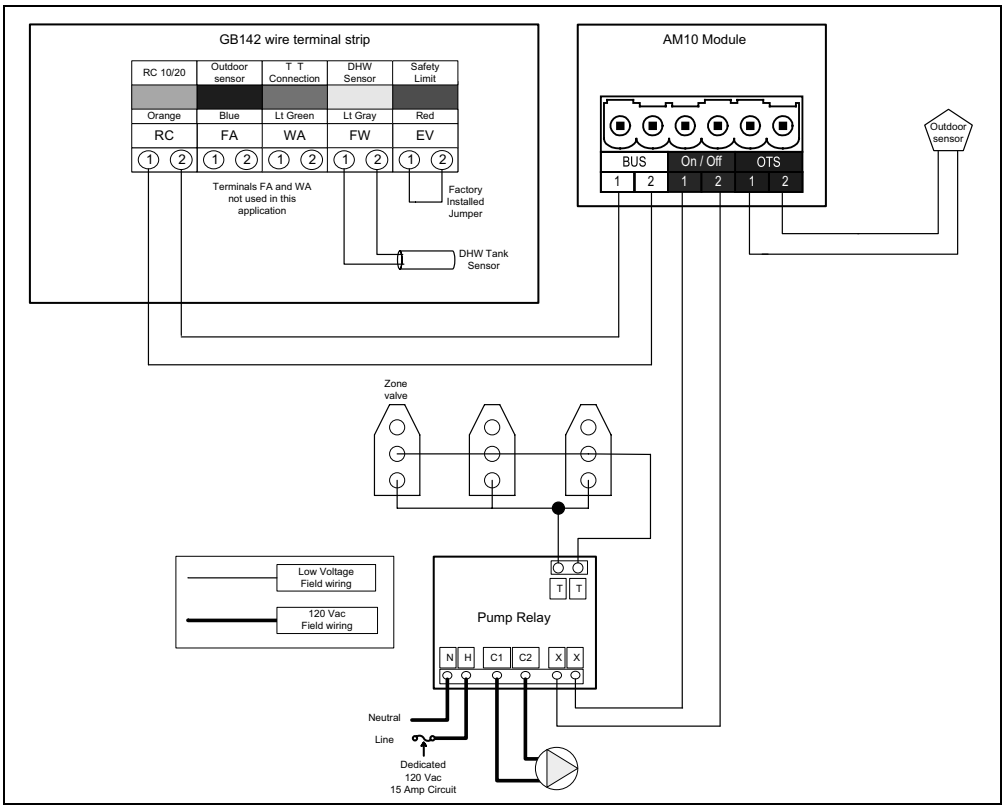

Fig. 7 Wiring detail

If there are multiple zones, wire all thermostats in parallel for calls for heat from any thermostat to produce a heat demand.

Do not install RC10 module when using this configuration.

1.5 Multiple Boiler Control

For every two boilers install one AM10 with a CM10 cascade module. Connect a system supply sensor to the CM10.

The CM10 will determine if one or both boilers need to fire and at what modulation. The CM10 also rotates the boilers for equal run time. For details on the CM10 module, consult the CM10 manual.

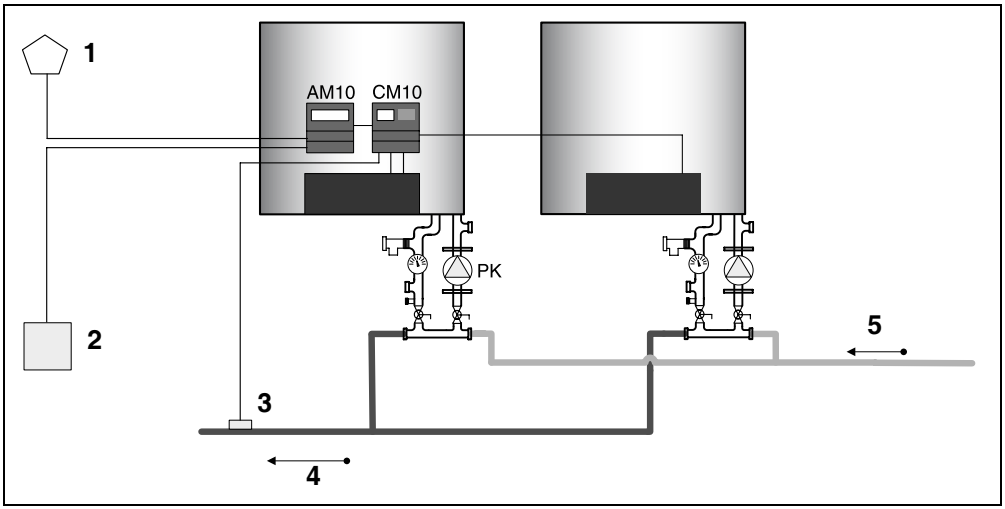

Fig. 8 Plumbing details

1. outdoor sensor
2. pump relay
3. supply sensor
4. supply
5. return

Do not install RC10 module when using this configuration.

1.6 Domestic Hot Water

1 boiler 1 tank:

Use tappings on the boiler manifold, and connect the tank sensor to the boiler's control panel.

2 boilers w/ 1 tank on boiler 1

Use tappings on the boiler manifold, and connect the tank sensor to the boiler's control panel.

2 boilers w/ 2 tanks, 1 each

Use tappings on the boiler manifold, and connect the tank sensor to each boiler's control panel.

2 User Manual

2.1 Introduction

The "AM10" is an outdoor temperature-dependent controller with a linear heating characteristic. The heating is switched on and off using the on/off input.

2.2 Heating characteristic

The heating characteristic indicates the relationship between the **outdoor temperature and the flow temperature**. This concerns a straight line which can be described by two points (**A** and **B**). Point **A** is the flow temperature in the case of an outdoor temperature of 14 °F and point **B** is the flow temperature in the case of an outdoor temperature of 68 °F. **C** is the high limit flow temperature set on the boiler. See fig. 9.
The flow temperature requested by the "AM10" can never be higher than the high limit flow temperature of the boiler. That is why you are recommended to set the flow temperature on the boiler (line **C**) to the maximum value, unless you deliberately want to compensate the heating characteristic, for example by a floor heating system.

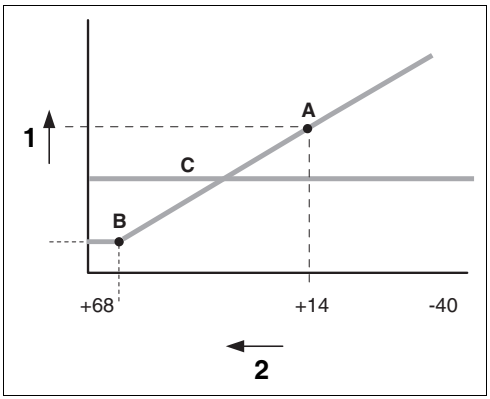

Fig. 9 Heating characteristic

1. Flow temperature
2. Outdoor temperature [°F]

2.3 Operation

Use the "Mode" key (fig. 10, pos. 1) to go through the various menu items "⌂ ♨ ▥ ⟋ ⟋ ☼/❄"; a line (fig. 10, pos. 2) on the display indicates the active menu item.

The value of a menu item which can be set will flash. The value can then be changed using the plus "**+**" and minus "**–**" (fig. 10, pos. 3) keys. The settings will not be lost if there is a power outage.

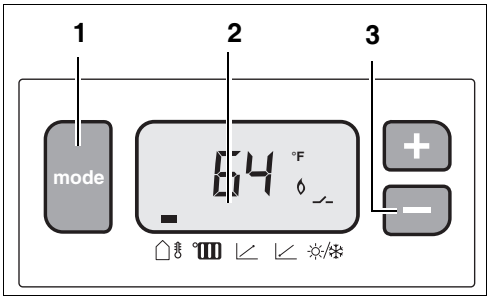

Fig. 10 Display view

If the display receives no user's input for 10 seconds, it will automatically switch over to its idle display (outdoor temperature). The display code is shown (flashing) when the appliance is locked. Otherwise the following symbols are implemented:

Symbol	Meaning
Flame	Appliance in heating mode
Switch contact	Heating on input "AM10"
Engineer's wrench .	Appliance locked

2.4 Description of the settings

Idle display

The current outdoor temperature is shown (64 °F); the corresponding symbol " " is marked. A heat request "–" has been registered on the "AM10"; the appliance is in heating mode " ".

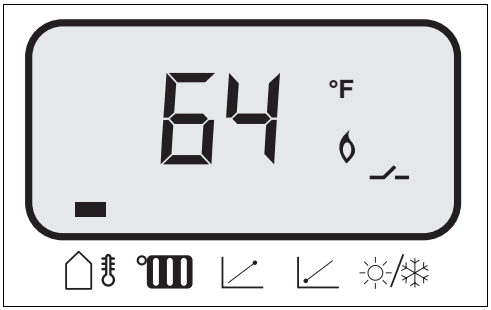

Fig. 11 Idle display (1st menu item)

Flow temperature setpoint

The "Mode" key was used to select the second menu item: the flow temperature setpoint " ".

Range: 32 - 194 °F.

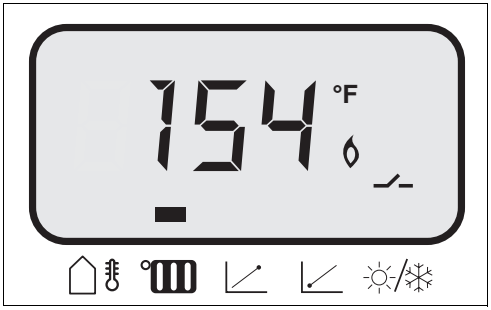

Fig. 12 The flow temperature on the boiler, requested by the "AM10"

Target point of heating characteristics

The "Mode" key was used to select the " " symbol. This concerns the target point of the heating characteristic corresponding with an outdoor temperature of 14 °F. The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 68 - 194 °F.
Factory setting: 167 °F.

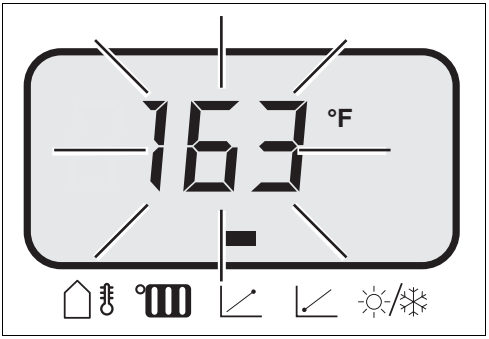

Fig. 13 Display of third menu item

Base point of heating characteristics

The "Mode" key was used to select the " " symbol. This concerns the base point of the heating characteristic corresponding with an outdoor temperature of 68 °F. The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 68 - 194 °F.
Factory setting: 86 °F.

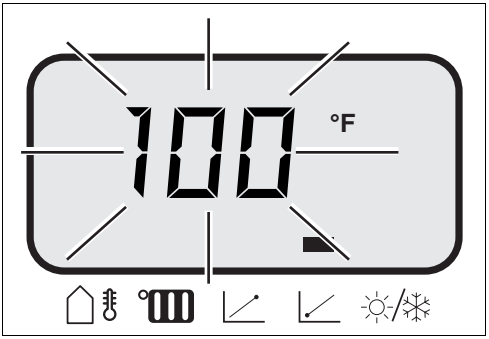

Fig. 14 Display of fourth menu item

Warm weather shut down (WWSD)

The "Mode" key was used to select the WWSD temperature " ". This concerns the maximum outdoor temperature at which the heating is still operational.
The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 32 - 86 °F.
Factory setting: 70 °F.

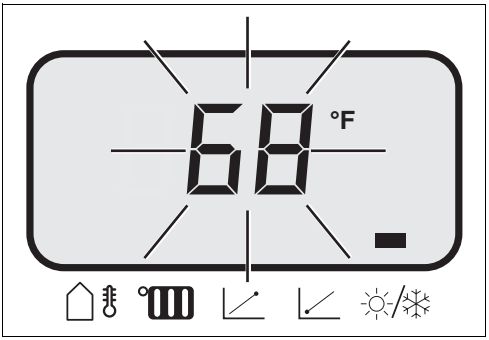

Fig. 15 Display of fifth menu item

2.5 Faults

The appliance is locked. When the appliance is in idle mode, a flashing appliance display code is shown instead of the outdoor temperature and the key symbol " " is displayed. The parameters can then be set by selecting the relevant parameter using the "Mode" key. However, the appliance will be in idle mode and the display code will show for as long as the system detects a fault.

The meanings of the various codes and the relevant troubleshooting procedures are detailed in the boiler's installation instructions.

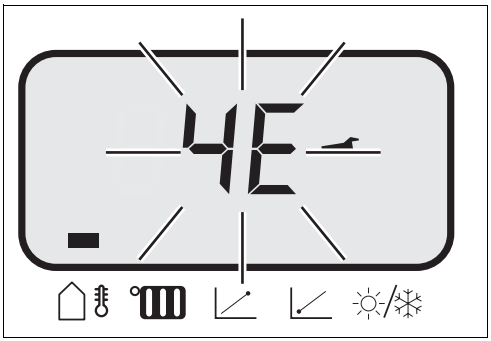

Fig. 16 Fault indication

Fault code 5H

This is a communication fault. Check the connection to the boiler.

Sensor fault/emergency operation

If no sensor is detected on the "AM10", dashes are shown in the numerical field instead of the outdoor temperature.

If there is a heat request (the display will show –), the "AM10" will request 122 °F, if this is permitted by the high limit.

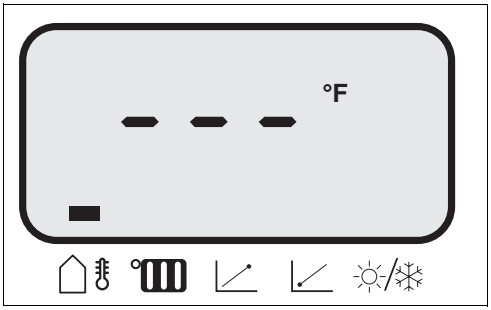

Fig. 17 Sensor fault display

1 Guide d'installation

1.1 Description du module

Description du produit

L'AM10 est une commande modulante pour les chaudières Buderus équipées d'un bus EMS. Elle règle la température de l'eau d'alimentation en fonction de la température extérieure. La chaudière s'allume, fonctionne et est modulée en fonction de l'information reçue de l'AM10 et du delta de température entre l'alimentation et le retour.

Un signal ON/OFF de tierce partie d'un thermostat de pièce ou d'une commande de zone sert à communiquer la demande de chaleur.

L'AM10 offre une fonction de mise hors service par temps chaud (MHSTC) si la température extérieure monte au-dessus d'une température programmable. Pour commander et monter deux chaudières, combiner l'AM10 et un module CM10 (voir page 20).

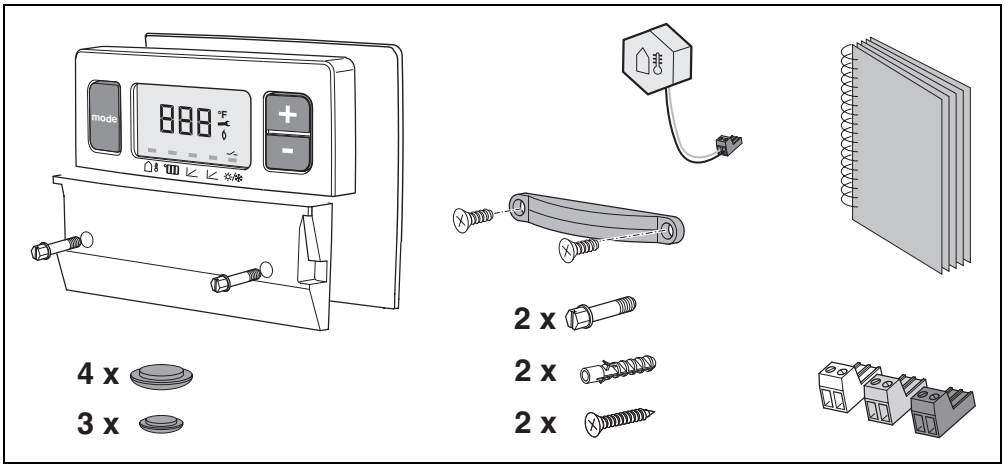

Fig. 1 Contenu de l'ensemble

1.2 Réinitialisation extérieure

La réinitialisation extérieure est une manière intelligente de commander économiquement le chauffage individuel en fonction de la température extérieure. Ses fonctions sont basées sur le principe que plus le climat est froid, plus la perte de chaleur d'une structure est grande et plus la température de l'eau d'alimentation doit être élevée pour chauffer la maison. Par temps plus chaud avec des pertes plus faibles, de l'eau à température plus basse pourra chauffer la maison.

La réinitialisation extérieure est la méthode de commande préférée si l'on utilise des zones multiples, étant donné que la température de l'eau dans la chaudière ne sera pas dictée par une zone principale ou la plus grande zone, mais uniquement par la perte de chaleur de la structure.

Courbe de chaleur

L'AM10 comporte une courbe de chaleur linéaire intégrée qui détermine la température de l'alimentation d'eau en fonction de la température extérieure.

La température maximale de l'alimentation d'eau réglée sur la commande de la chaudière fonctionne en limite supérieure. La chaudière suivra la courbe de chaleur dans l'AM10 jusqu'à la limite supérieure.

	Température extérieure de journée standard	Température d'alimentation
Défaut	14 °F	167 °F
Exemple 1	0 °F	170 °F
Exemple 2	-10 °F	175 °F
Exemple 3	-20 °F	180 °F

1.3 Montage de l'AM10

Le module AM10 devrait être monté à l'intérieur d'une chaudière GB142 au-dessus des commandes.

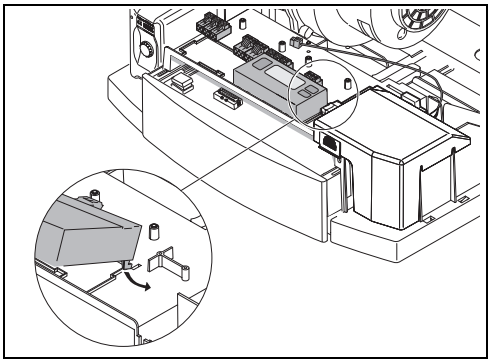

Fig. 2 Installation

Bus EMS

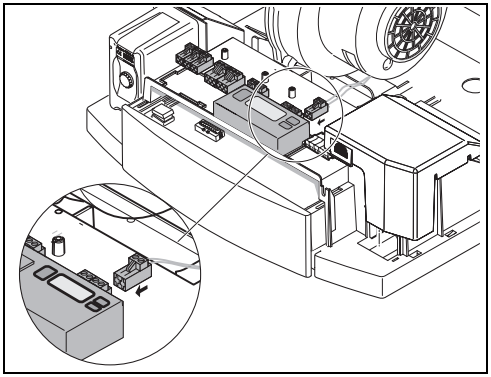

Fig. 3 Bus EMS

Thermostat

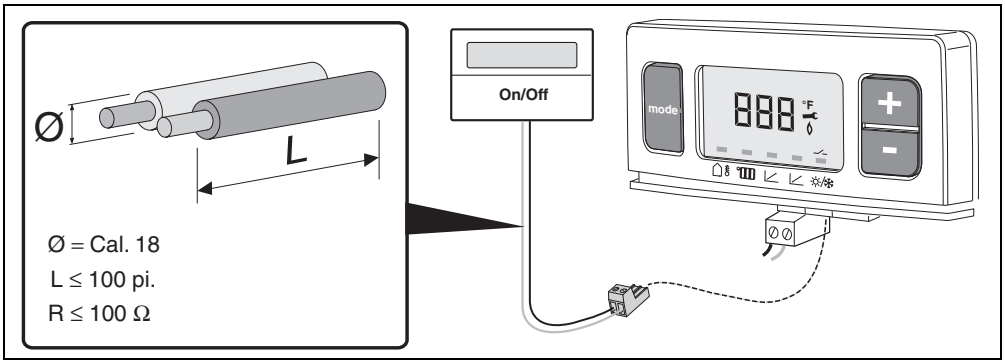

Fig. 4 Thermostat

Capteur extérieur

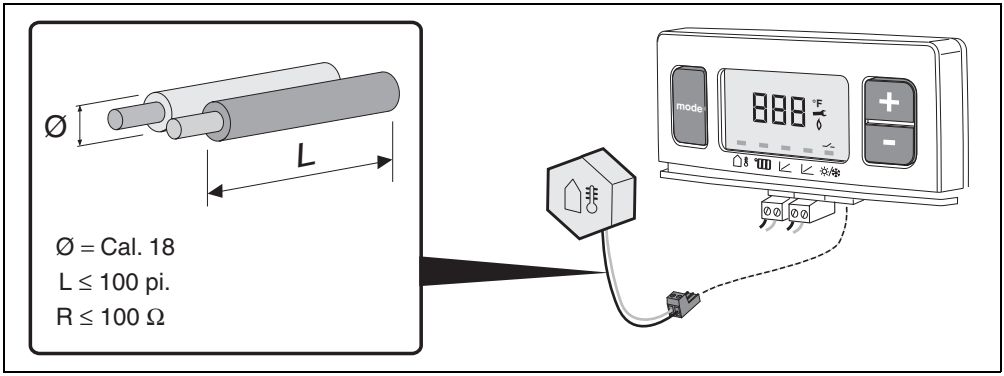

Fig. 5 Capteur extérieur

[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]
-40	336.5	5	72.9	50	19.9	95	6.5
-31	242.6	14	55.3	59	15.7	104	5.3
-22	177.0	23	42.3	68	12.5	113	4.4
-13	130.4	32	32.7	77	10.0	122	3.6
-4	97.1	41	25.4	86	8.1		

Tableau 1 Table de résistance du capteur

Emplacement du capteur extérieur

Pour obtenir les meilleures performances, le capteur extérieur doit être placé dans un endroit où le soleil ne l'atteindra jamais. Le monter uniquement sur un mur orienté vers le nord hors de portée du soleil et au moins 30 cm (1 pi) au-dessus de la hauteur maximale de la neige. Garder le capteur à l'écart de sources de chaleur telles qu'un évent de sécheuse, de chauffe-eau ou de chaudière, une fenêtre, etc.

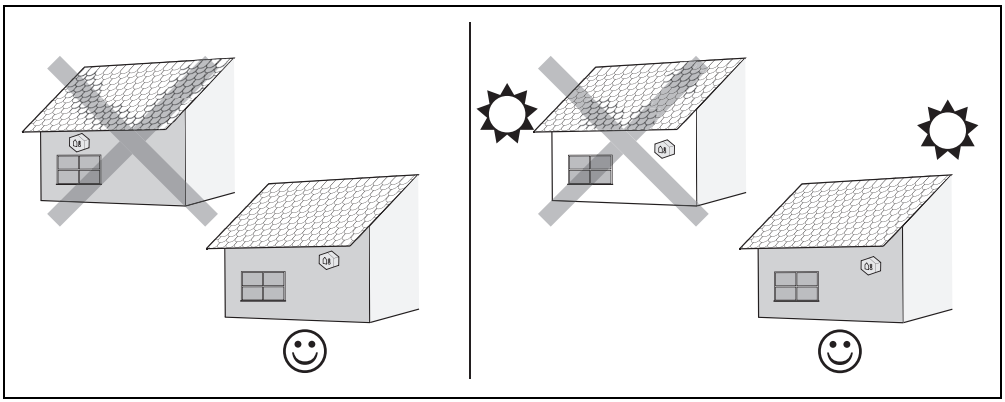

Fig. 6 Emplacement du capteur

1.4 Commande de chaudière simple

Pour équiper une chaudière GB142 simple d'une commande de réinitialisation extérieure :

Articles nécessaires :

– Thermostat ON/OFF pour chaque zone de chauffage avec vannes et pompes de zones individuelles
– Relais de pompe
– Câblage.

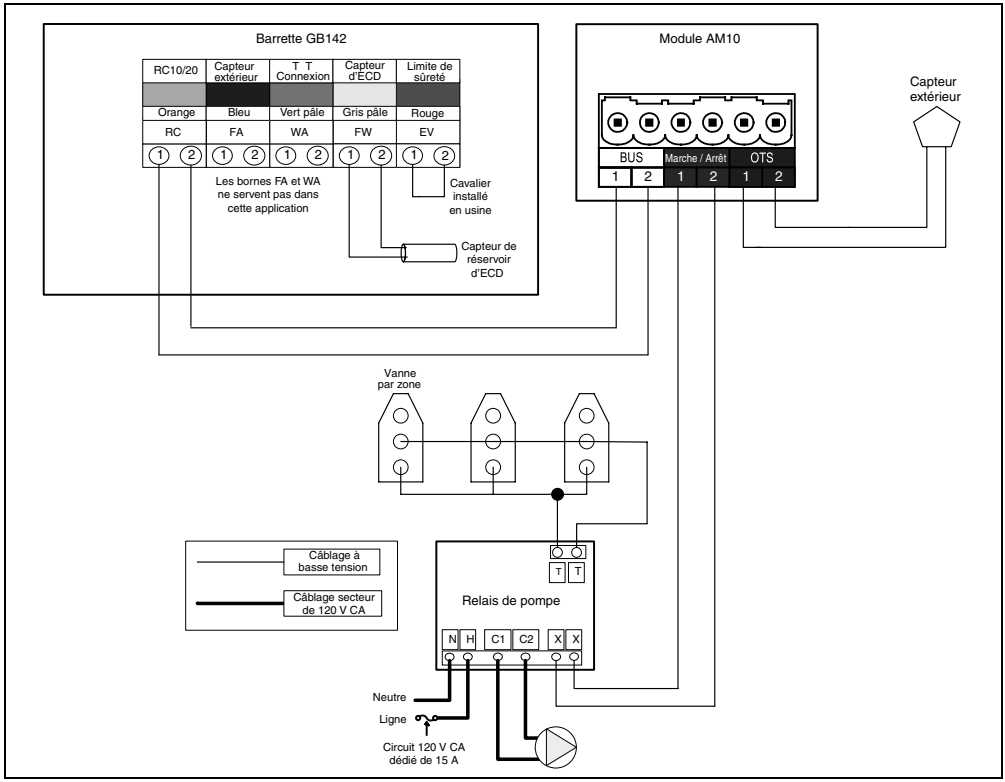

Fig. 7 Détail du câblage

S'il y a plusieurs zones, câbler tous les thermostats en parallèle pour permettre à l'appel de chaleur de n'importe quel thermostat de produire une demande de chaleur.

Ne pas installer de module RC10 si cette configuration est employée.

1.5 Commande pour chaudières multiples

Pour chaque paire de chaudières installées, il faut un module AM10 et un module de cascade CM10. Brancher un capteur d'alimentation de système au CM10.

Le CM10 détermine si une seule ou les deux chaudières doivent s'allumer et à quel degré de modulation. Le CM10 fait également la rotation des chaudières pour équilibrer le temps de fonctionnement. Pour connaître les détails du module CM10, consulter le manuel du CM10.

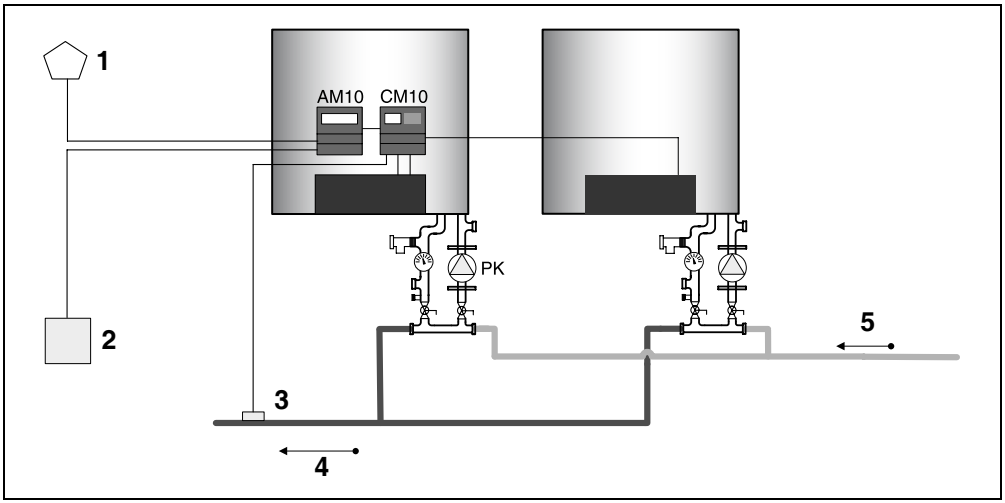

Fig. 8 Détails de la plomberie

1. capteur extérieur
2. relais de pompe
3. capteur d'alimentation
4. alimentation
5. retour

Ne pas installer de module RC10 si cette configuration est employée.

1.6 Eau chaude domestique

1 chaudière, 1 réservoir :

Utiliser les branchements du collecteur de la chaudière et brancher le capteur du réservoir au panneau de commande de la chaudière.

2 chaudières avec 1 réservoir sur la chaudière 1

Utiliser les branchements du collecteur de la chaudière et brancher le capteur du réservoir au panneau de commande de la chaudière.

2 chaudières avec 2 réservoirs (1 chacune)

Utiliser les branchements du collecteur de la chaudière et brancher le capteur du réservoir au panneau de commande de chaque chaudière.

2 Guide d'utilisation

2.1 Introduction

L'AM10 est une commande dépendant de la température extérieure avec une caractéristique de chauffage linéaire. Le chauffage est commuté à l'aide d'une entrée on/off.

2.2 Caractéristique de chauffage

La caractéristique de chauffage indique la relation entre la **température extérieure et la température du flux**. Cela se traduit par une ligne droite décrite entre deux points (**A** et **B**). Le point **A** est la température du flux si la température extérieure est de 14 °F et le point **B** est la température du flux si la température extérieure est de 68 °F.
C représente la limite supérieure de la température du flux réglée à la chaudière. Voir fig. 9. La température de flux demandée par l'AM10 ne peut jamais être au-delà de la limite supérieure de la température du flux de la chaudière. C'est pourquoi il est recommandé de régler la température du flux de la chaudière (ligne **C**) à la valeur maximale, à moins de vouloir volontairement compenser la caractéristique de chaleur, par exemple, à l'aide d'un système de chauffage de plancher.

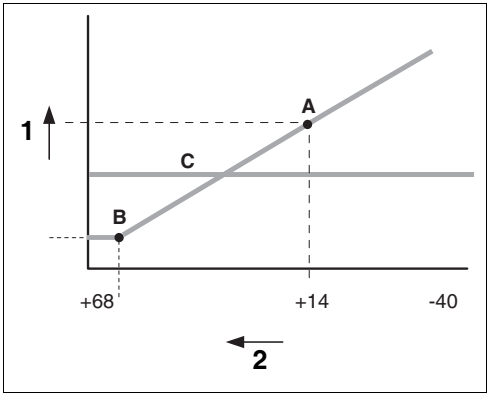

Fig. 9 Caractéristique de chauffage

1. Température du flux
2. Température extérieure [°F]

2.3 Fonctionnement

Utiliser la touche "Mode" (fig. 10, pos. 1) pour faire défiler les divers articles du menu "⌂ ♨ ▥ ∠ ∠ ☼/❄"; un trait (fig. 10, pos. 2) sur l'affichage indique l'article de menu activé.

La valeur d'un article de menu qui peut être réglée est celle qui clignote. La valeur peut alors être modifiée à l'aide des touches plus "**+**" et moins "**–**" (fig. 10, pos. 3).
Les réglages ne seront pas perdus en cas de panne de courant.

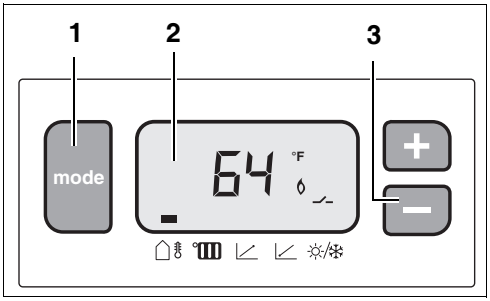

Fig. 10 Affichage

Si l'affichage ne reçoit aucune entrée de l'utilisateur pendant 10 secondes, il se remet automatiquement en mode d'attente (affichage de la température extérieure). Le code d'affichage est affiché (clignotant) si l'appareil est verrouillé. Autrement, les symboles suivants sont affichés :

Symbole	Signification
Flamme	L'appareil est en mode de chauffage
Contact de commutateur	Chauffage sur l'entrée AM10
Clé de mécanicien	L'appareil est verrouillé

2.4 Description des réglages

Affichage en attente

La température extérieure actuelle est affichée (64 °F); le symbole correspondant " " est affiché.
Une demande de chaleur " " a été enregistrée sur l'AM10; l'appareil est en mode de chauffage " ".

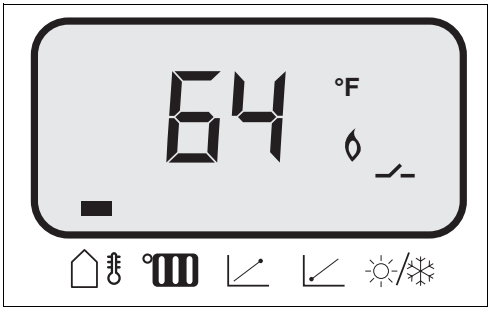

Fig. 11 Affichage en attente (1er article du menu)

Réglage de température du flux

La touche "Mode" a servi à sélectionner le deuxième article de menu : le réglage de la température du flux " ".

Fourchette : 32 - 194 °F.

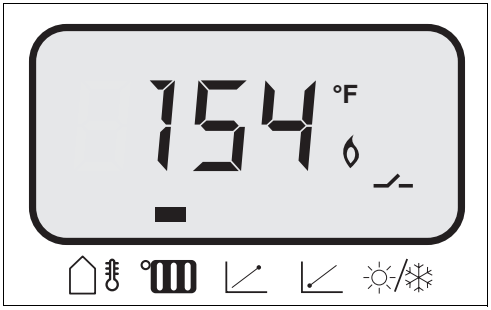

Fig. 12 Température du flux à la chaudière, demandé par l'AM10

Point cible des caractéristiques de chauffage

La touche "Mode" a servi à sélectionner le symbole " ⟋ " : cela implique le point cible de la caractéristique de chauffage correspondant à une température extérieure de 14 °F.
La valeur peut alors être modifiée à l'aide des touches plus "**+**" et moins "**–**".

Fourchette de réglage : 68 - 194 °F.
Réglage d'usine : 167 °F

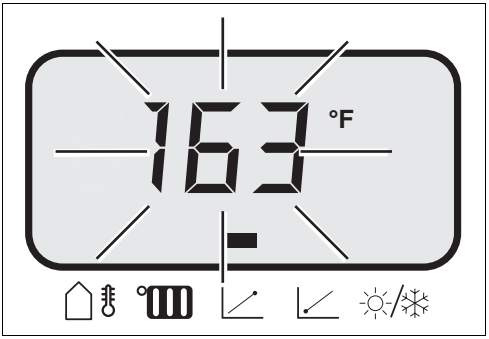

Fig. 13 Affichage du troisième article du menu

Point de référence des caractéristiques de chauffage

La touche "Mode" a servi à sélectionner le symbole " ⟋ " : cela implique le point de référence de la caractéristique de chauffage correspondant à une température extérieure de 68 °F.
La valeur peut alors être modifiée à l'aide des touches plus "**+**" et moins "**–**".

Fourchette de réglage : 68 - 194 °F.
Réglage d'usine : 86 °F

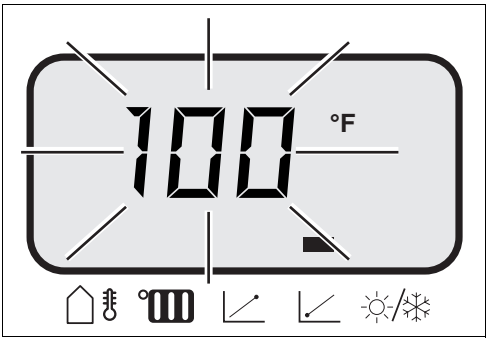

Fig. 14 Affichage du quatrième article du menu

Mise hors service par temps chaud (MHSTC)

La touche "Mode" a servi à sélectionner la température MHSTC "☼/❄" :
cela implique la température extérieure maximale à laquelle le chauffage continue de fonctionner. La valeur clignote et peut alors être modifiée à l'aide des touches plus "**+**" et moins "**–**".

Fourchette de réglage : 32 - 86 °F.
Réglage d'usine : 70 °F.

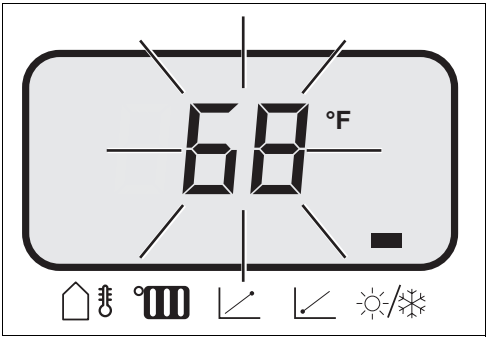

Fig. 15 Affichage du cinquième article du menu

2.5 Défaillances

L'appareil est verrouillé. Si l'appareil est en mode d'attente, un code d'affichage clignotant est affiché plutôt que la température extérieure et le symbole de la clé " " s'affiche. Les paramètres peuvent alors être réglés en sélectionnant le paramètre pertinent à l'aide de la touche "Mode". Cependant, l'appareil sera en mode d'attente et affichera le code aussi longtemps que le système détectera une défaillance.

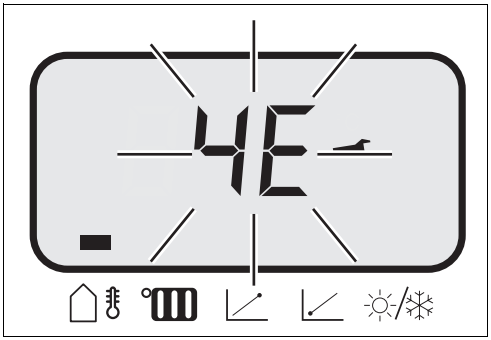

Fig. 16 Indication de défaillance

La signification des différents codes et les procédures de dépannage correspondantes sont données en détail dans les instructions d'installation de la chaudière.

Code de défaillance 5H

Il s'agit d'une défaillance de communication. Vérifier la connexion à la chaudière.

Défaillance de capteur/fonctionnement d'urgence

Si aucun capteur n'est détecté par l'AM10, des traits s'affichent dans le champ numérique au lieu de la température extérieure.

Si une demande de chaleur se produit (l'affichage montrera), l'AM10 demandera 122 °F, si cela est permis par la limite supérieure.

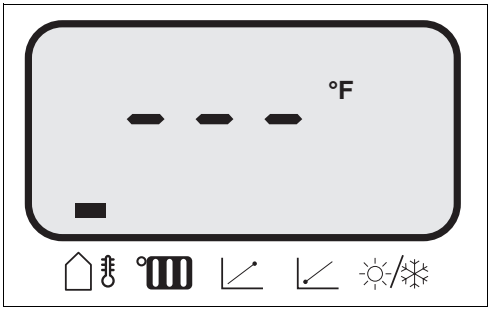

Fig. 17 Affichage d'une défaillance du capteur

1 Instrucciones de montaje

1.1 Description of Module

Product description

The AM10 is a modulating control for Buderus boilers equipped with the EMS bus. It sets the supply water temperature based on outdoor temperature. The boiler fires, runs and modulates based on the information received from the AM10, and the delta temperature between supply and return.

An ON/OFF signal from third party room thermostats or zone controllers is used to communicate a heat demand.

The AM10 offers warm weather shutdown (WWSD) when the outdoor temperature rises above a custom settable temperature.

To control and stage two boilers, combine the AM10 with a CM10 module (see page 31).

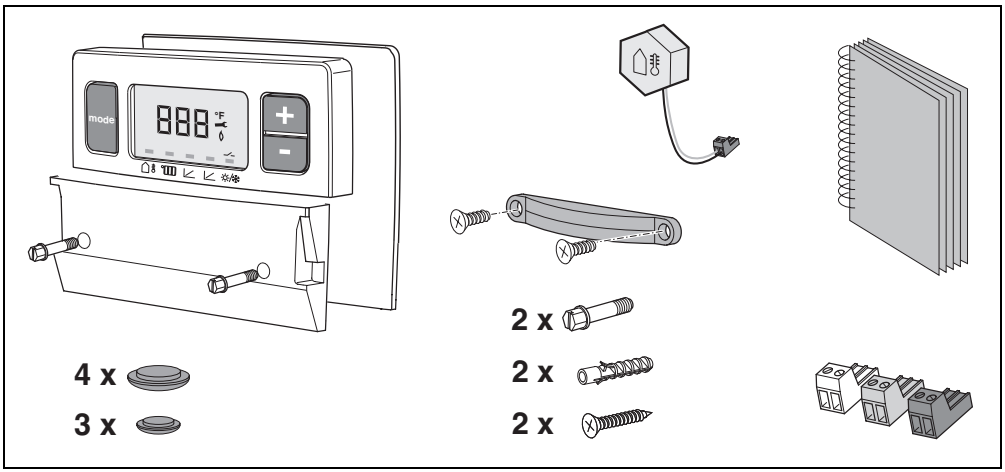

Fig. 1 Set includes

1.2 Outdoor reset

Outdoor reset is a smart way to economically control space heating based on outdoor temperature. It functions based on the fact that the colder the weather the greater the heat loss of a structure, and the higher the supply water temperature needed to heat the house. On a warmer day with smaller losses a lower water temperature will be able to heat the house.

Outdoor reset is the preferred control when using multiple zones, as the boiler supply water temperature is not dictated by a master or largest zone, but solely based on the heat loss of the structure.

Heating curve

The AM10 has a built in linear heating curve that sets the supply water temperature in relation to the outdoor temperature.

The maximum supply water temperature set on the boiler dial works as a high limit. The boiler will follow the heating curve in the AM10 up to the high limit.

	Outside temperature design day	Supply temperature
Default	14 °F	167 °F
Example 1	0 °F	170 °F
Example 2	-10 °F	175 °F
Example 3	-20 °F	180 °F

1.3 Mounting of the AM10

The AM10 module should be mounted inside a GB142 boiler above the controls.

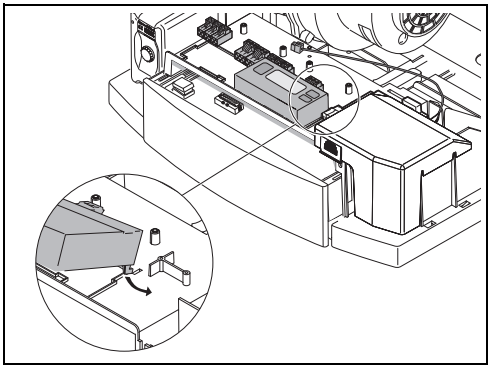

Fig. 2 Installation

EMS-Bus

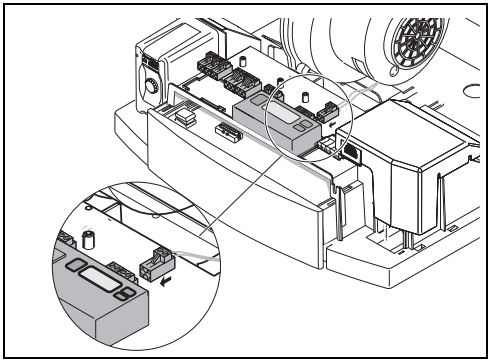

Fig. 3 EMS-Bus

Thermostat

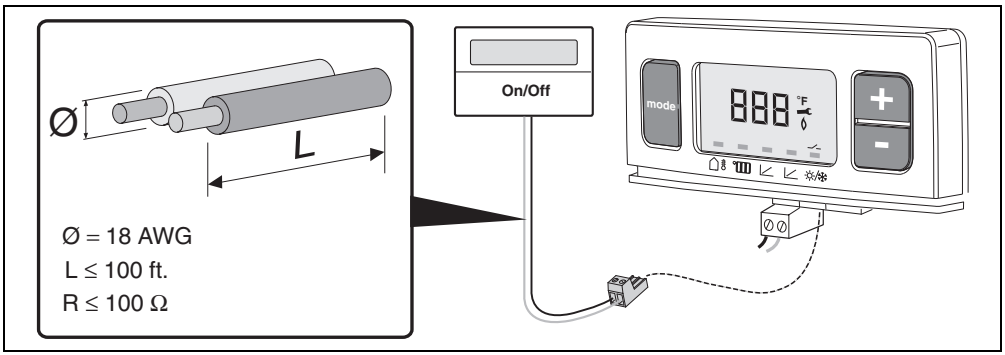

Fig. 4 Thermostat

Outdoor sensor

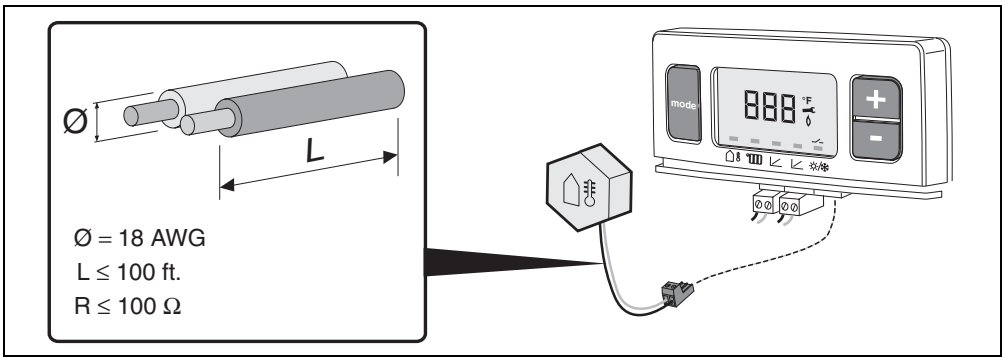

Fig. 5 Outdoor sensor

[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]	[°F]	[kΩ]
-40	336.5	5	72.9	50	19.9	95	6.5
-31	242.6	14	55.3	59	15.7	104	5.3
-22	177.0	23	42.3	68	12.5	113	4.4
-13	130.4	32	32.7	77	10.0	122	3.6
-4	97.1	41	25.4	86	8.1		

Tabla 1 Sensor resistance table

Positioning of the outdoor sensor

For best performance the outdoor sensor is to be positioned where the sun can never reach it. Mount only on a North facing wall of the building out of the sunlight, with at least 1 foot above snow line. Keep the sensor away from heat sources like dryer, water heater, or boiler vents, windows, etc.

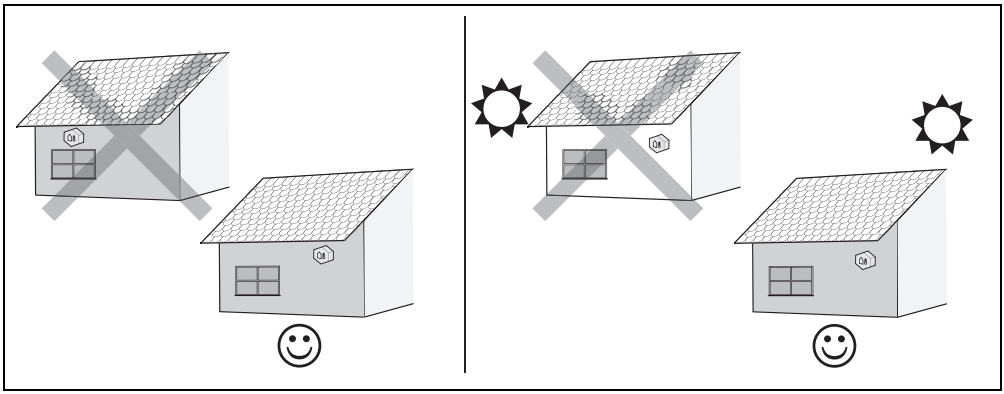

Fig. 6 Sensor location

1.4 Single Boiler Control

To equip a single GB142 boiler with outdoor reset control:
Required items:

– ON/OFF thermostat for every heating zone with individual zone pump or zone valve
– Pump relay
– Wiring

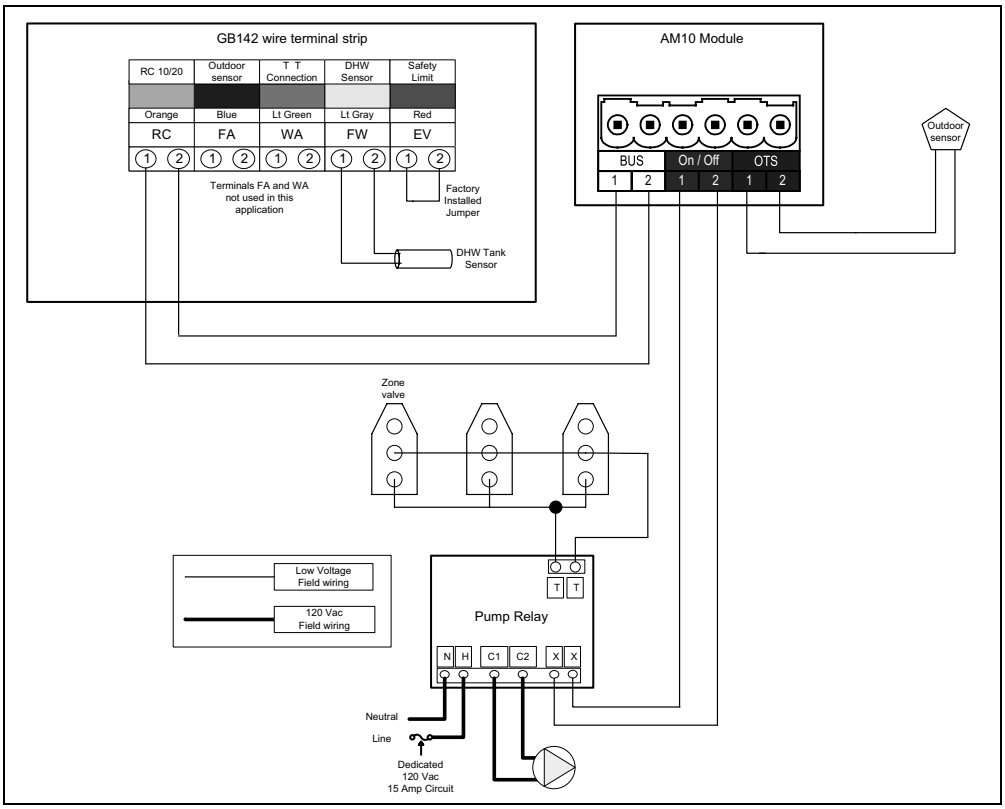

Fig. 7 Wiring detail

If there are multiple zones, wire all thermostats in parallel for calls for heat from any thermostat to produce a heat demand.

Do not install RC10 module when using this configuration.

1.5 Multiple Boiler Control

For every two boilers install one AM10 with a CM10 cascade module. Connect a system supply sensor to the CM10.

The CM10 will determine if one or both boilers need to fire and at what modulation. The CM10 also rotates the boilers for equal run time. For details on the CM10 module, consult the CM10 manual.

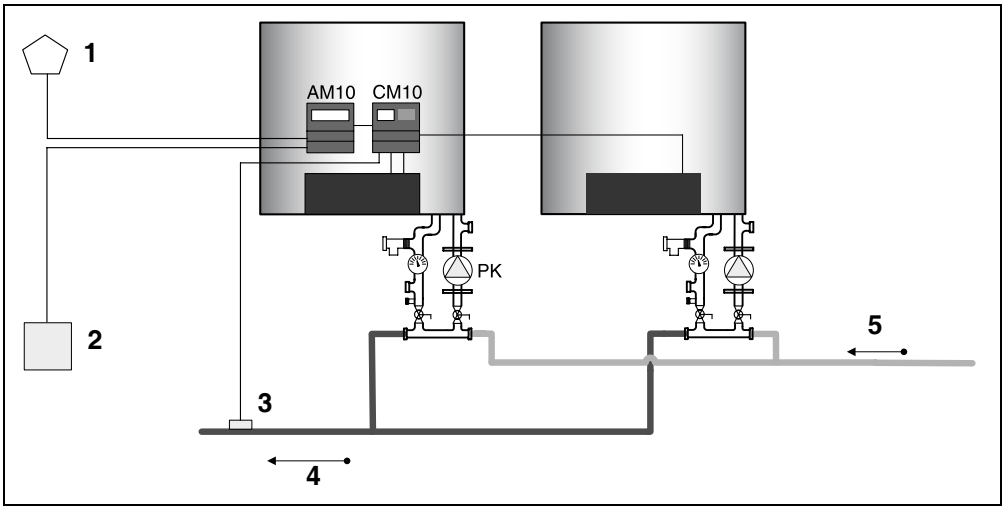

Fig. 8 Plumbing details

1. outdoor sensor
2. pump relay
3. supply sensor
4. supply
5. return

Do not install RC10 module when using this configuration.

1.6 Domestic Hot Water

1 boiler 1 tank:

Use tappings on the boiler manifold, and connect the tank sensor to the boiler's control panel.

2 boilers w/ 1 tank on boiler 1

Use tappings on the boiler manifold, and connect the tank sensor to the boiler's control panel.

2 boilers w/ 2 tanks, 1 each

Use tappings on the boiler manifold, and connect the tank sensor to each boiler's control panel.

2 User Manual

2.1 Introduction

The "AM10" is an outdoor temperature-dependent controller with a linear heating characteristic. The heating is switched on and off using the on/off input.

2.2 Heating characteristic

The heating characteristic indicates the relationship between the **outdoor temperature and the flow temperature**. This concerns a straight line which can be described by two points (**A** and **B**). Point **A** is the flow temperature in the case of an outdoor temperature of 14 °F and point **B** is the flow temperature in the case of an outdoor temperature of 68 °F. **C** is the high limit flow temperature set on the boiler. See fig. 9.
The flow temperature requested by the "AM10" can never be higher than the high limit flow temperature of the boiler. That is why you are recommended to set the flow temperature on the boiler (line **C**) to the maximum value, unless you deliberately want to compensate the heating characteristic, for example by a floor heating system.

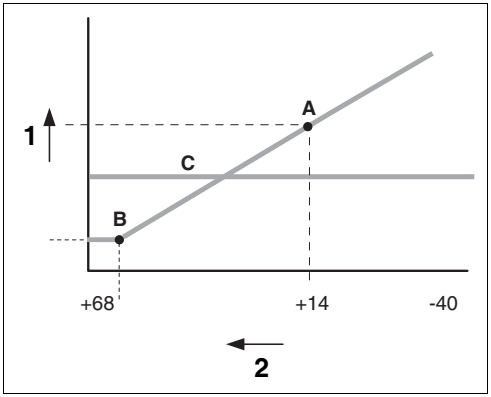

Fig. 9 Heating characteristic

1. Flow temperature
2. Outdoor temperature [°F]

2.3 Operation

Use the "Mode" key (fig. 10, pos. 1) to go through the various menu items "⌂ ♨ ▥ ⟋ ⟋ ☼/❄"; a line (fig. 10, pos. 2) on the display indicates the active menu item.

The value of a menu item which can be set will flash. The value can then be changed using the plus "**+**" and minus "**–**" (fig. 10, pos. 3) keys. The settings will not be lost if there is a power outage.

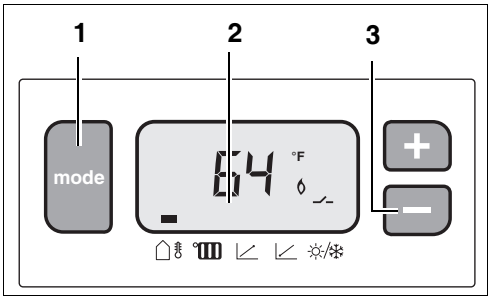

Fig. 10 Display view

If the display receives no user's input for 10 seconds, it will automatically switch over to its idle display (outdoor temperature). The display code is shown (flashing) when the appliance is locked. Otherwise the following symbols are implemented:

Symbol	Meaning
Flame	Appliance in heating mode
Switch contact	Heating on input "AM10"
Engineer's wrench .	Appliance locked

2.4 Description of the settings

Idle display

The current outdoor temperature is shown (64 °F); the corresponding symbol " " is marked. A heat request " " has been registered on the "AM10"; the appliance is in heating mode " ".

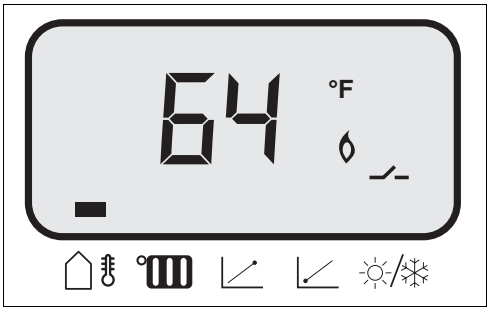

Fig. 11 Idle display (1st menu item)

Flow temperature setpoint

The "Mode" key was used to select the second menu item: the flow temperature setpoint " ".

Range: 32 - 194 °F.

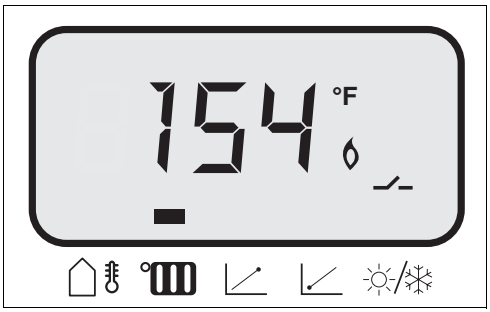

Fig. 12 The flow temperature on the boiler, requested by the "AM10"

Target point of heating characteristics

The "Mode" key was used to select the " " symbol. This concerns the target point of the heating characteristic corresponding with an outdoor temperature of 14 °F. The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 68 - 194 °F.
Factory setting: 167 °F.

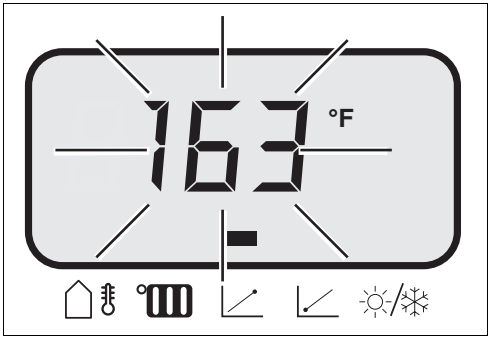

Fig. 13 Display of third menu item

Base point of heating characteristics

The "Mode" key was used to select the " " symbol. This concerns the base point of the heating characteristic corresponding with an outdoor temperature of 68 °F. The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 68 - 194 °F.
Factory setting: 86 °F.

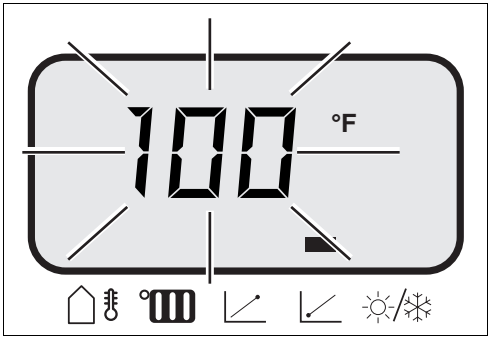

Fig. 14 Display of fourth menu item

Warm weather shut down (WWSD)

The "Mode" key was used to select the WWSD temperature "☼/❄". This concerns the maximum outdoor temperature at which the heating is still operational.
The value will flash and can be changed using the plus "**+**" and minus "**–**" keys.

Adjustment range: 32 - 86 °F.
Factory setting: 70 °F.

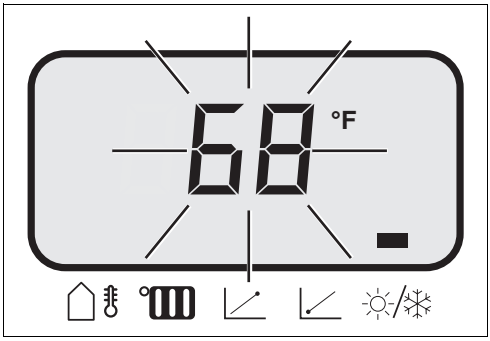

Fig. 15 Display of fifth menu item

2.5 Faults

The appliance is locked. When the appliance is in idle mode, a flashing appliance display code is shown instead of the outdoor temperature and the key symbol " " is displayed. The parameters can then be set by selecting the relevant parameter using the "Mode" key. However, the appliance will be in idle mode and the display code will show for as long as the system detects a fault.

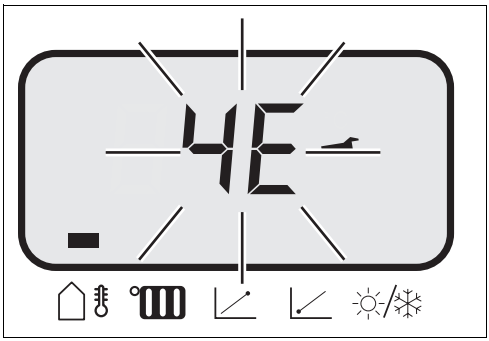

Fig. 16 Fault indication

The meanings of the various codes and the relevant troubleshooting procedures are detailed in the boiler's installation instructions.

Fault code 5H

This is a communication fault. Check the connection to the boiler.

Sensor fault/emergency operation

If no sensor is detected on the "AM10", dashes are shown in the numerical field instead of the outdoor temperature.

If there is a heat request (the display will show –), the "AM10" will request 122 °F, if this is permitted by the high limit.

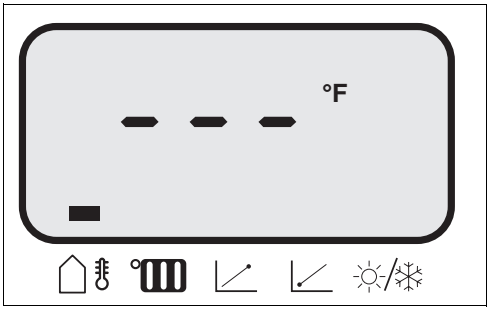

Fig. 17 Sensor fault display

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