House automation system control of DRU appliances

General

All DRU appliances with a (Mertik, type GV60) radiographic remote control are provided with connection pins for connection to a house automation system (so-called external control). The radio remote control consists of a transmitter and a receiver and operates within the 430MHz band.

It works as follows: On the side of the receiver you will find a connector with 5 connection pins. One of these points is used when there is a second thermocouple. The other four points are suitable for an external control with fixed wiring. This external control could be a house automation system or, for instance, a touch screen (which Dru does not supply)

The available functions are:
1.   Contact 1+3   Ignition   Close both contacts for 1 second
2.   Contact 1   Flame up
3.   Contact 3   Flame down
4.   Contact 1+2+3 Off (pilot flame will also be off) Close all three contacts simultaneously for 1 second

For this, please refer to the appendix 'Mertik_GV60-OI-EN-11.2008_external_source'.
The remote control can be used in two modes: manual and with a clock/thermostat function.
For this, please refer to the installation and user manuals provided with the appliance.

Manual mode
The external source (the house management system) takes over all functions of the remote control and controls the temperature, the clock function (if applicable), high-low, ignition and off.
Smooth control of the temperature can only be obtained if the external source has a certain level of intelligence, for instance a learning function for the heating characteristics of the room, or if it uses a time function to estimate to what extent the gas tap is opened (because the Mertik GV60 control never 'knows' to what extent the gas control is opened or closed. What it does know is that after, for instance, 3 seconds from the low setting, the valve will be at approximately 50% of the maximum setting). If this is not used, the temperature control will take place through an ON/OFF function. This will mean a lower comfort level and also leads to a higher energy consumption, as the required temperature of the room must be set to a higher average to obtain the same level of comfort.

Thermostatic mode
The external source (the house management system) controls high-low, ignition and off. The clock function and the thermostatic function are taken over by the remote control itself.

Various
We hereby include a brief description of the control. For the connection of an external control, you will need a small cable.
At programming and testing of the house management system, the software must take into account two conditions:
1. Ignition of the fire is blocked, for safety reasons, for a 60 or120 second period (depending of the type of remote control) if the fire is switched off (pilot also out) This can either be manually or by one of the safety devices provided with the fire
2. The second thermocouple (checking cross lighting of the main burner on most fires) must have enough time to cool down once the fire is switched off. This may take up to 3 minutes for a fire with a pebble fuel bed (voltage 2nd thermocouple must be below 1.3mV). If this is not the case you will hear a very long beep.
Both conditions will have to be met before the fire can be re-ignited. This should be taken into account when programming or testing the house automation system, e.g. by incorporating a waiting period of 3 minutes in the software.

Safety
Safety requirements for remote controlled gas fires were developed in the gas directive in the GAD safety

guidance B12, published by GASTEC, Apeldoorn, Netherlands (also see the appendix 'Guidance B12 GAD 90-396-EEC') which indicates, for instance, the following dangerous situations:
1. Unintended activation by a small child
2. Activating the fire without knowing/intending to do so, possibly with a combustible object(s) in front of it
3. Activating it by operating a different fire in the same or a different room or house.

To prevent this from happening, the following measures must be taken:
1. Igniting the fire should only be possible through a well-considered and determined action (for instance, it should not be a simple operation that could be performed by accident)
2. It should not be possible to ignite the fire without anyone present/without supervision.
3. Accidental simultaneous ignition of two or more fires must be prevented through measures in the design.

This means that there are requirements that the device must meet (it should not be possible to ignite the fire by accident, so e.g. clicking on the required function after which a window appears asking for confirmation?), also in relation to placement (height?, because of children) of the control panel of the house management system.

Item 2) igniting the fire without anyone present, could for instance be solved by placing a movement sensor in the room concerned, which is connected to the house management system.
Unintended ignition of other fires than intended, is particularly relevant in case of RF systems (but not exclusively, it is also possible in the case of an ultrasonic control). If the receiver of the remote control of the house management system is controlled through fixed wiring, this problem has already been solved.

The items mentioned here in relation to safety are only examples to give you an idea of how you should approach this. The B12 standard does not have a formal status. DRU's explanation above may be incomplete, and it is possible that other solutions are available. For that reason, DRU cannot accept any liability. The installer is fully responsible for the safe operation of the installation.

EJ
11-03-2010

Appendixes - Guidance B12 GAD 90-396-EEC
              - Mertik_GV60-OI-EN-11.2008_external_source