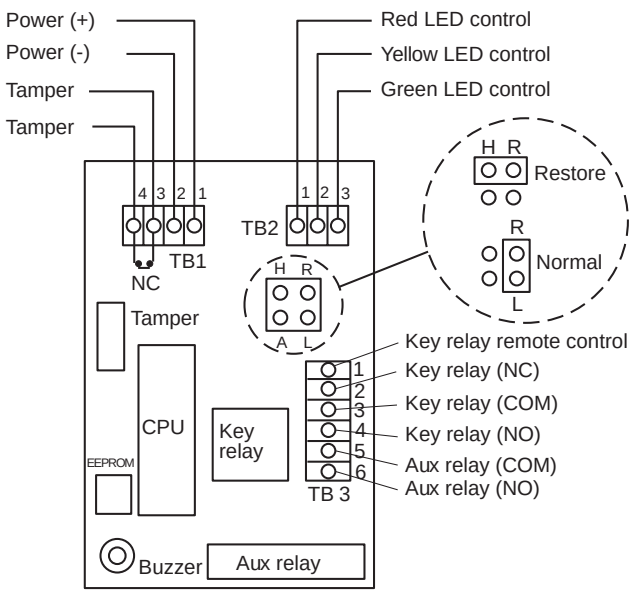
Programmable Access Keypad GB

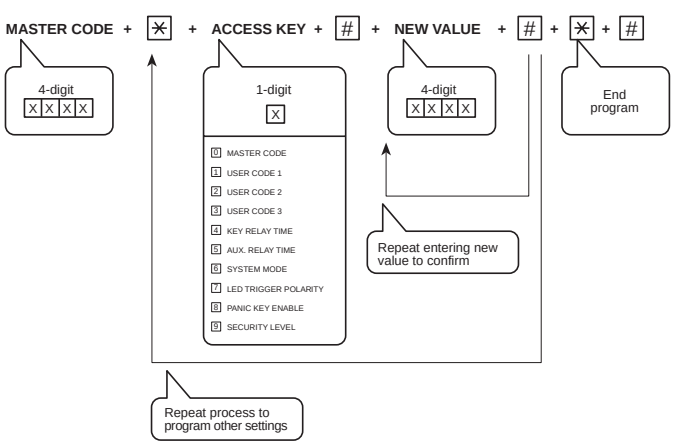
Instruction Leaflet

Figures

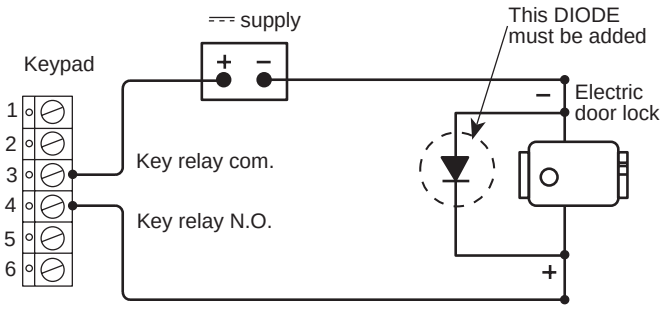
① Connection terminals and allowed jumper positions



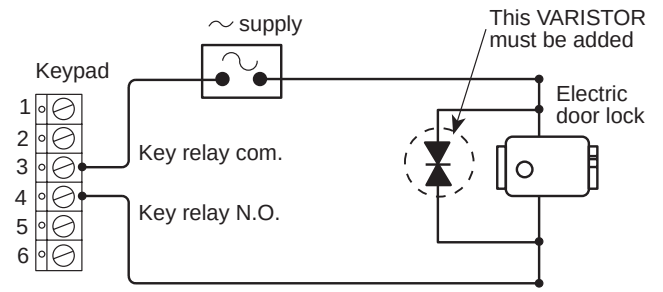
② Quick reference for programming



③ Connecting a d.c. electric door lock to the keypad



④ Connecting an a.c. electric door lock to the keypad



GB **RS Stock No.**

852-378

Introduction

The **RS** programmable access keypad is designed to provide a flexible, low cost method of securely controlling doors, intruder alarms or any other equipment where general access needs to be limited. The unit has 2 relays, the key relay is single pole change over providing both N/O and N/C contacts the auxiliary is normally open only. A tamper switch (N/C contact) is provided so that the keypad may be protected by an intruder alarm system. Three LEDs are used on the keypad to indicate system status. These may be controlled by the keypad or by the external equipment the keypad is used with.

Please read the **complete** instructions carefully to enable you to fully understand the keypad functions before beginning your installation.

Keypad operation

All keypad setup codes and user codes are stored in EEPROM, hence information is not lost in the event of power failure.

Security codes

There are four four digit codes (ie. 10,000 possible key combinations) for control of the keypad. These are:-

User code 1 - activates the key relay.
User code 2 - activates the auxiliary relay.
User code 3 - activates **both** the key and auxiliary relays.
Master code - allows user to change any program settings and security codes.

LED indicators

There are 2 programmable operation modes: internal LED mode and external LED mode. In internal LED mode, the LEDs show the power status and the different activations of the relays; in external LED mode, the LEDs show the status of external devices (the keypad is factory pre-programmed in internal LED mode).

Table 1. LED indications in internal/external LED modes

	Red LED	Yellow LED	Green LED
Internal LED mode	Key relay activated	Aux relay activated	Power on
External LED	All LED's controlled by external device		

To Activate the key relay

Either (a) or (b):
(a) Enter user code 1 (default value 1 1 1 1);
(b) Press the remote control button.

To Activate the auxiliary relay

Enter user code 2 (default value 2 2 2 2).

To Activate BOTH the key and auxiliary relays

Enter user code 3 (default value 3 3 3 3).

To Activate the panic key

Press * and # simultaneously. As long as the panic key is pressed, auxiliary relay is activated. **Before using panic key, remember to set access key 8 to 0001 (see programming table 2).**

Wrong code security

If you have entered a wrong digit and wish to enter a code again, enter # to clear previous entries, and re-enter. If you have entered a wrong code (4-digit), a 2-second short beep will occur, and you need to enter a correct code. If you have stopped entering for more than 7 seconds, all previous entries will be cleared; enter the code again. If you have entered an invalid code 4 times consecutively (16 digits), a 10-second short beep will occur, and the keypad will run a preset security level routine (table 2).

To Restore the master code

If the master code is forgotten, the user can still restore the master code to its default value of 1234. To do this:

1. Disconnect the power supply.
2. Move the restore jumper from **normal** to **restore** position (see figure 1).
3. Connect the power supply again.
4. Move the restore jumper back to **normal** position.

Now the master code is 1234 again, but the values of all the other program settings will remain unchanged.

CAUTION: if you forget to switch the jumper back to **normal,** the keypad will stop functioning.

To Activate the key relay by remote control

Connecting a press button to the keypad allows user to activate key relay without entering user code 1 or 3. The button (normally open switch contacts) can be connected to terminals TB3-1 and TB1-2 (signal ground). When the key relay is in momentary mode, it will change state as long as the switch is closed (pressed); when the switch is opened (released), the key relay restarts timing. When the key relay is in latch mode, the switch toggles the key relay.

Programming procedures

1. Enter master code (default value 1234).
2. Enter the *key. 3 long beeps will be heard, and the green LED will flash, indicating that the keypad is in program mode. Both relays are now deactivated.
3. To program a desired setting, enter the corresponding access key number (table 2). The LEDs will indicate the access key chosen (table 3).
4. Enter the # key.
5. Enter the desired value (4-digit) of the function selected.
6. Enter the # key.
7. Enter the desired value again.
8. Enter the # key. If the two entries of the desired value are identical, 2 long beeps will be heard, the red and yellow LEDs will go off. The green LED will keep flashing.
   If the two entries are mismatched, or if you have entered a wrong sequence of keys, a 2-second short beep will be heard, and the keypad will stay in the program mode.
9. Enter the *key and then the # key to end programming. 2 long beeps will be heard, the LEDs will return to their original states.

Note: to program another setting, repeat steps (2)-(8) above

Table 2. Programmable keypad functioning

Access key	Function	Default value	Allowed values
0	Master code	1234	0000-99999
1	User code 1	1111	0000-9999 except master code
2	User code 2	2222	0000-9999 except master code and user code 1
3	User code 3	3333	0000-9999 except master code and user code 1, 2
4	Key relay time (0.01 - 99.99sec)	0500	0000 Latch mode 0500 5.00 sec. 9999 99.99 sec.
5	Aux relay time (0.01 - 99.99sec)	0050	0000 Latch mode 0500 0.50 sec 9999 99.99 sec
6	System mode	0110 (X= 0 or 1)	0110 (Internal LED mode, user codes 1, 2 enabled, user codes 3 disabled) 0XXX Internal LED mode 1XXX External LED mode X0XX Disable user code 1 XX0X Disable user code 2 XXX0 Disable user code 3 X1XX Enable user code 1 XX1X Enable user code 2 XXX1 Enable user code 3
7	LED trigger polarity	0000	0000 Negative level trigger 0001 Positive level trigger
8	Panic key enable	0000	0000 Disable 0001 Enable
9	Security level	0001	0000 No safety level set 0001 After 4 successive wrong codes, stay idle 30 sec. 0002 After 4 successive wrong codes, stay idle 60 sec. 0003 After 4 successive wrong codes, stay idle until master code is entered. 0004 After 4 successive wrong codes, aux relay closes.

Table 3. LED status during programming

Access key	Yellow LED	Red LED	Access key	Yellow LED	Red LED
-	OFF	OFF	6	ON	1flash
1	OFF	1 flash	7	ON	2 flashes
2	OFF	2 flashes	8	ON	3 flashes
3	OFF	3 flashes	9	ON	4 flashes
4	ON	4 flashes	0	ON	ON
5	ON	OFF	(**note:** green LED always flashes)		

Installation

Surface mounting procedures

1. Use the mounting box as a template to mark holes for the 2 mounting screws. Remove the mounting box and drill the screw holes.
2. 3 knockouts are available on the mounting box for wiring. Cut the appropriate knockout hole in the mounting box.
3. Mount the mounting box on the wall using the 2 pan head screws provided.
4. Mount the keypad to the mounting box using the 2 counter sunk head screws provided.

Power requirement

A 10-15V ⎓ source should be used. A power supply such as **RS** stock no. 400-5661 may be suitable.

Wiring

All I/O connections will be via terminal blocks shown in figure 1. A list of all terminals is shown below.

Terminal (TB1)	Desc.	Terminal (TB2)	Desc.
1	Power(+)	1	Red LED control
2	Power (-)	2	Yellow LED control
3	Tamper	3	Green LED control
4	Tamper		

Terminal (TB3)	Desc.
1	Key relay remote control
2	Key relay N.C.
3	Key relay COM
4	Key relay N.O.
5	Aux relay COM
6	Aux relay N.O.

Power input (TB1-1, TB1-2)

A 10-15V ⎓ source should be connected to these 2 terminals.

Tamper switch (TB1-3, TB1-4)

The tamper switch is normally closed. It will be opened when anyone attempts to open the keypad.

LED external control inputs (TB2-1, TB2-2, TB2-3)

In external LED mode, connect these terminals to the respective outputs of a device. At positive trigger polarity, a 5-12V signal turns on the LEDs (see note 1), while a 0-1V signal turns off the LEDs; at negative trigger polarity, a 0-1V signal turns on the LEDs, while a 5-12V signal turns off the LEDs.

Key relay remote control (TB3-1)

Connect a switch between this terminal and signal ground. When the key relay is set in momentary mode, closing the switch will keep key relay activated, opening the switch afterwards will start timing; when key relay is set in latching mode, the switch toggles the key relay contacts.

Key relay (TB3-2, TB3-3, TB3-4)

There are 3 output terminals (NC, C, NO). When the key relay is activated, the NC, NO terminals will change their states. The duration of the activation is programmable.

Auxiliary relay (TB3-5, TB3-6)

When the auxiliary relay is activated, these terminals are closed. The duration of activation is programmable.

Note:1

At positive trigger polarity, one of the following cases can cause the LED's to remain lit:

a. The LED controls (TB2-1, 2, 3) are not connected to any external device; **or**
b. The external device does not provide a 0-1V output to the LED controls.

To solve the problem, add a 2.2k resistor between TB2-1 and TB1-2 for the red LED, between TB2-2 and TB1-2 for the yellow LED, between TB2-3 and TB1-2 for the green LED.

Electric door release connection

Important: The following connections must be made when using the unit with an electric door release.

An electric door lock is essentially a solenoid controlled door strike. When the lock is turned on/off, electromagnetic induction causes noise and transient voltage to be generated which can feedback into the keypad and cause damage. To eliminate this feedback, make either one of these connections:

If you use a d.c. power supply

Connect the diode (supplied with your keypad) close to the door lock in parallel, as shown in figure 3. Beware of polarities.

If you use an a.c. power supply

Connect a 18V r.m.s. varistor close to the door lock in parallel, as shown in figure 4. Beware that the a.c. supply voltage cannot exceed the varistor voltage. If your door lock needs an a.c. voltage higher than 18V r.m.s., use a varistor with a higher voltage.

Technical specification

Operation voltage range:	10-15 ⎓
Current consumption (nominal):	Normal - 10mA Key relay on - 42mA Auxiliary relay on - 27mA Both relays on - 58mA
Key relay contact ratings:	24V ⎓, 5A maximum 120V ~, 5A maximum
Aux relay contact ratings:	24V ⎓, 1A maximum 120V ~, 0.5A maximum
Tamper switch:	N.C. when pressed 40mA @ 100V ⎓
Security code combinations:	10,000 (4 digits/code)
On plate LED:	1 red, 1 yellow, 1 green.
LED indication: Internal LED mode:	Green - power Red - key relay activated Yellow - aux relay activated
External LED mode:	the 3 LEDs are triggered by 3 external control inputs (positive trigger 5-12V, negative trigger 0-1V)
Key/auxiliary relays activation times:	Latch or 0.01-99.99s momentary
Keyboard:	0-9,#,* 12-button tactile - feel keypad

V10013

Dimensions:	114mm(H) x 70mm (W) x 36mm (D)
Weight:	150g
Operating temperature:	-20°C to 50°C

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