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# Technical Reference

## KP-6840 & DK-1025 Reader-Keypad

## Programming for Installation

*When AWID's Model KP-6840-GR-0 or DK-1025 reader-keypad is installed using the Wiegand interface, both the AWID unit and the access control system to which it is interfaced may need simple programming. This note describes the programming and when it may be needed. This is valid for KP-6840 with firmware MB, serial number 1040- and higher.*

### Description

AWID's KP-6840 Reader-Keypad combines (a) a 125 kHz proximity card reader and (b) a 12-key 3✗4 keypad, in a single unit. Depending on the requirements of the application and the settings of the host system, the KP-6840 may be used as a card-reader-only, or as a keypad-only, or as a combination reader-and-keypad.

The KP-6840 is similar to an AWID SP-6820 switchplate-type proximity card reader, with a keypad plugged into the front of the reader, and a "cut out" cover that fits around the keypad and protects the sides of the reader. Like the SP-6820, the KP-6840 can be fastened by the supplied screws to the threaded holes at the ends of a single-gang electrical utility box, or to a wall or other surface.

The KP-6840 has wires for both Wiegand and RS-232 serial interfaces. The card reader's data output is simultaneous on both Wiegand and RS-232 data wires. The keypad's output is only on the Wiegand data wires. The Data-0 and Data-1 Wiegand connections to the access control system transmit both card data and keypad data, in either sequence.

### Data Transmission   (Green and White Data Wires)

The **card reader** part of the KP-6840 transmits a binary string that reproduces the Wiegand code that is programmed into AWID's cards and tags and wafers – the *same* number of bits as in the card's code. There is no programming or selection necessary to make this happen. All AWID readers share this feature for simple installation.

The **keypad** of the KP-6840 may be programmed in these two ways (see Installation Sheet for programming steps) –

1. **Keypad's Data Format**: If necessary, the installer may select, in the field, either –
(a) 26-bit Wiegand-type binary string when the keypad PIN is completed by pressing the # key – the same format as a card reader reading a 26-bit card (this is the default format in a new KP-6840), or –
(b) 4-bit data burst each time that a key is pressed, or --
(c) 8-bit data burst each time that a key is pressed.

2. **Keypad's Facility Code**: In option (a), the keypad may be used to program a particular facility code (site code) into the 26-bit Wiegand transmission. This **keypad** facility code may be the same as the facility code in the cards or tags that are read on the **card reader**, or it may be a different facility code.

Both of these programming items depend on requirements of the access control system – *not* on any need of the KP-6840.

### Which Keypad Data Format to Use?

Which of these three data formats should you have working in a newly installed KP-6840? Here are helpful questions.

• What is the application for the KP-6840. What will the customers use it for?

• What is the application's Operation Mode?: Card-Only, PIN-Only, Either-Card-Or-PIN, Card-Plus-PIN, PIN-Plus-Card?

• In the PC's Users Database page, is there a box for a keypad-entered PIN that is separate from the card's ID number?

• If so, is the keypad's PIN the same as the card's ID number? Or is the keypad's PIN different from the card's ID number (that is, a cross-reference number)?

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- If the PIN is different from the card's ID number, does the system calculate the PIN and record that value? Or does the system's operator or the cardholder select the PIN? For security, use ID numbers and PINs with 4 digits or more.

- If the PIN must be entered into the Users Database by the programmer, does documentation for the host system specify what keypad data format to select in the KP-6840 – 26-bit string, or 4-bit burst, or 8-bit burst?

## How to Use the Keypad's Output?

- To have the keypad's code output be *identical* to the card reader's output:
  1. Use a card that has 26-bit-standard code format. AWID's full code is usually printed on the card.
  2. In the KP-6840, select 26-bit Wiegand output from the keypad. Then program the keypad's facility code to be the same as the card's facility code.
  3. Program the host system for Card-Only mode. (PIN-Only mode should give the same result.)
  4. First read the card. Then enter the keypad's PIN identical to the card's ID number, and end by pressing the **#** key.

  *Discussion*: The KP-6840's data transmission was *identical* for the card read and for the keypad's PIN entry. The host system can not tell the difference between these two events. If the system is programmed to grant access for that card's code, then access *must* be granted also when that PIN is entered. Either card or PIN may be used.

  *Conclusion*: This is a great test for performance of the KP-6840 and of the host system. This procedure is ideal for the simplest Either-Card-Or-PIN mode. This procedure works even if the host system has User Database programming for card-reader-only (no keypad). If users forget their cards, their keypad PINs will work as well.

- To enter a keypad PIN *identical* to the card's ID number, when the system uses different code format for the keypad:
  1. This works whether the Users Database has separate boxes in the user programming page for card ID number and for keypad PIN, or has only the box for the card's ID number.
  2. Determine from the host system's documentation whether keypad input must be 4-bit burst or 8-bit burst.
  3. Program that code format (4-bit or 8-bit) into the KP-6840.
  4. Enter the keypad PIN that is identical to the card ID number. If required, press a control key (**#** or **\***) to end the PIN entry.

  *Discussion*: This works with any of the Operation Modes except Card-Only, as programmed in the host system.

  *Conclusion*: This procedure makes remembering the keypad PIN easy (read it off the card). But it is not secure.

- To enter a keypad PIN *different* from the card's ID no., when the system uses different code format for the keypad:
  1. This works only when the Users Database has separate boxes in the user programming page for card ID number and for keypad PIN.
  2. Determine from the host system's documentation whether keypad input must be 4-bit burst or 8-bit burst.
  3. Program that code format (4-bit or 8-bit) into the KP-6840.
  4. Enter the keypad PIN that is cross-referenced to the card ID number. If required, press a control key (**#** or **\***) to end the PIN entry.

  *Discussion*: This works with any of the Operation Modes except Card-Only, as programmed in the host system.

  *Conclusion*: This procedure requires that the user remember the keypad PIN. This is more secure than having the PIN be the same number as the card ID number.

- To use the Card-Plus-PIN or PIN-Plus-Card operation mode (as programmed in the host system):
  1. Read the card, *or* enter the keypad PIN – whichever is the first stage in the operation mode.
  2. The KP-6840 indicates the first entry by a short beep and/or LED color change (determined by the host system).
  3. Then enter the PIN, *or* read the card – the second stage of the operation mode.
  4. If both the card code and the PIN are programmed for this user in the User Database, the system grants access.

  *Discussion*: The host system must be able to read these two code inputs in this sequence, and to indicate the pause between the two stages using the beeper and/or LED.

  *Conclusion*: This is *dual-authentication*, and therefore the most secure of the system's 5 Operation Modes.

**Notes**: 1. If the KP-6840's LED is green during all operations, the system is probably programmed for Auto-Unlock.

2. The installer must be familiar with AWID's KP-6840 product sheet and Installation Sheet.