

- Portable
- Compact
- One button operation
- Comprehensive device support
- Field or production use
- 3V - 5.5V operation
- Bulk Erase command needs 4.5V
- High and Low Voltage Programming

Device Support:

All PIC18F Devices but total memory available is 64KB.

PIC16F devices - See Page 3

Note Programmer is powered from target and operates down to 3V but Bulk Erase command needs 4.5V minimum target voltage

For full 128KB Plus EEPROM, better low voltage support and faster programming speeds, see our Hand-held Programmer - PIC-HH0010

Order Code PIC-KF0010U

For  MICROCHIP

PICMicro

PIC USB Keyfob Field Programmer

A portable ISP in a Keyfob package



The Keyfob

The ultimate programming tool for PIC microcontrollers, in the field or on the production line - so easy a child can use it! The smallest stand-alone programmer for PIC available, just load it once from PC USB Port and then program target devices again and again and again.

One Keyfob Starter Kit = Many Keyfobs

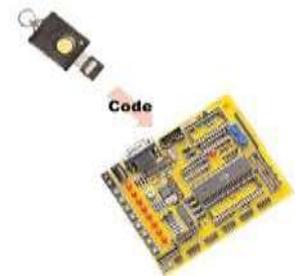
You require just one starter kit for your PC and you can load as many keyfobs as you need. Just connect the starter kit dongle to your USB port and run the master software. Select your data file, device type and Fuse settings and now you can load the keyfobs with your program or test code in seconds. As the Keyfob is USB powered during load, you don't need any power supplies or cabling, just plug a Keyfob into the USB programming adapter supplied. Once a Keyfob is loaded, it is completely portable and can be used where you need it, not where your PC is located.



LOAD



MOVE



PROGRAM

Field Updates

Think how often you need a simple upgrade to a vending machine, slot machine or other equipment such as lifts, security controls or medical equipment - simple, except it is hundreds of miles away. The rugged design and simple operation of this unique programmer means that you can "let the Keyfob do the walking" by sending the Keyfob rather than an expensive engineer.

Production line

Wouldn't it be nice to have a simple to use, completely portable yet low cost programmer, which can be loaded with different program code or test vectors, available where required on the production floor? Not possible? It is now, with the Keyfob programmer - one button operation, auto sensing of target, auto verification and error indicator - that's really simple to use. Fits on a key ring and weighs less than one ounce - that's portable!

The keyfob programmer eliminates operator errors.



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Target Voltages

The Keyfob, unlike the handheld programmer can't power target so you will need power on your target circuit. The PIC keyfob programmer will program target circuits down to 3V but there are limitations with older PIC microcontroller below 4.5V as the Bulk Erase command does not work. This means that below 4.5V, older locked devices cannot be re-programmed, nor can the configuration bytes or write protect bits.

- 3V to 5.5V target circuit voltage
- 4.5V minimum target voltage for Bulk Erase command to work on older PICs
- Below 4.5V, Configuration Bytes, write protect bits and locked memory cannot be re-programmed as Bulk Erase does not work
- **Handheld programmer can power low voltage targets at 4.5V unlike keyfob which can not power target**

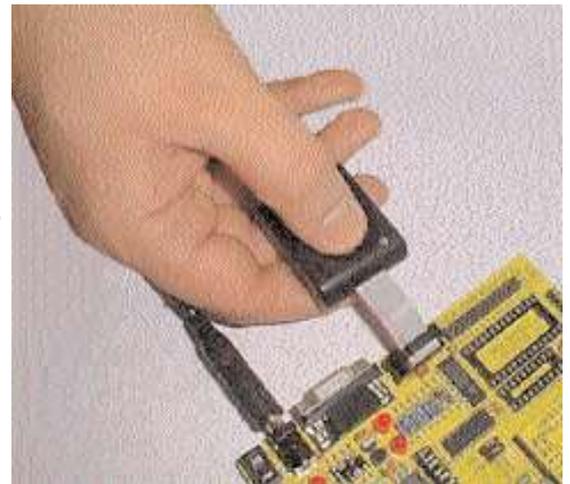
Device Support

You need flexibility when it comes to choosing a device so we have made sure that the Keyfob supports as many devices as possible.

- Most PIC18F and PIC16F devices are supported - see www.kanda.com/support for latest list
- Maximum code size is 256 Kbytes plus 4 KB EEPROM
- HVP mode used is Vdd before Vpp. Handheld programmer uses Vpp first where available
- Automatically loads and verifies the Code memory, data EEPROM, User ID, configuration bytes and write protection bits, if required

Programmer details

Small, light and completely portable, the Keyfob is the most flexible programming tool around. It measures just 4.5 by 3 by 1.3 cm - which is 1.8 by 1.3 by 0.5 inches for you non-metric types! It weighs just 27g (one ounce) so it is great value and easy to post or carry on your key ring. To give you really long life, the Keyfob can be loaded with new code thousands of times as it uses serial Flash technology. A 9 -12V VPP generator for High Voltage programming is built-in to the programmer.



Order Numbers

To help you get just what you need for your application, we can offer you a range of options.

Product	Order Number
Keyfob USB Starter kit	PIC-KF0010U
Individual Keyfob Only (USB)	PIC-KF0020U
Multipack (pack of 5 keyfobs - USB)	PIC-KF0030U
Field Service Pack (USB Starter kit plus 5 keyfobs)	PIC-KF0040U

YOU MUST HAVE A KEYFOB STARTER KIT TO LOAD THE INDIVIDUAL KEYFOBS

Starter Kit Contents:

- One Keyfob programmer with battery included.
- One spare battery.
- PC software for Keyfob loading

Compatible with Windows 2000, XP, VISTA, win7, win8, win10 and win 11

Device Support:

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PIC16F devices - see page 3

Note

Programmer is powered from target and operates down to 3V but Bulk Erase command needs 4.5V minimum target voltage

Order Codes

PIC-KF0010U
PIC-KF0020U
PIC-KF0030U
PIC-KF0040U

Device Support:

All PIC18F Devices .

PIC16F devices at 3-5V only

Current Support -

HVP + LVP:

PIC16F87x

PIC16F627

PIC16F628

PIC16F818

PIC16F819

PIC16F87

PIC16F88

PIC16F873A

PIC16F874A

PIC16F876A

PIC16F877A

PIC16F627A

PIC16F628A

PIC16F648A

All new

PIC16F1xxx

HVP Only

PIC16F84A

PIC16F83

PIC16F84

PIC16F684

PIC16F7x

PIC16F7x7

PIC16F688

PIC16F63x

PIC16F68x

PIC16F690

PIC16F91x

Not Supported:

PIC16F630

PIC16F676

PIC16F505

PIC16F716

See Handheld

Programmer for more

memory and low

voltage

support

Current Consumption

1) Loading Keyfob from PC

KEYFOB during firmware download :	12mA
KEYFOB in idle mode (connected to PC) :	6mA
KEYFOB during EEPROM programming :	15mA

2) Target Programming

The target must be powered as the keyfob programmer cannot supply power to the target. The keyfob can operate with a target voltage down to 3V. Note that below 4.5V older PIC micro-controllers do NOT support Bulk Erase, therefore Configuration and Code Protection Bits cannot be erased. So if Code/Data Protection Bits are set, the Code/Data memories **CANNOT** be reprogrammed using the keyfob if the target voltage is below 4.5V. See our Handheld Programmer for an alternative for low voltage targets.

Connectors

The 10-way pin-out of the keyfob programmer connector is shown here. A 10-way to 6-way SIL adapter is supplied. This has standard Microchip pinout. A 6-way flying lead is also available.

10-way Keyfob output

End of lead view

Data - PGD	9	10	GND
Clock - PGC	7	8	GND
MCLR/Vpp	5	6	GND
PGM	3	4	GND
N/C	1	2	VDD

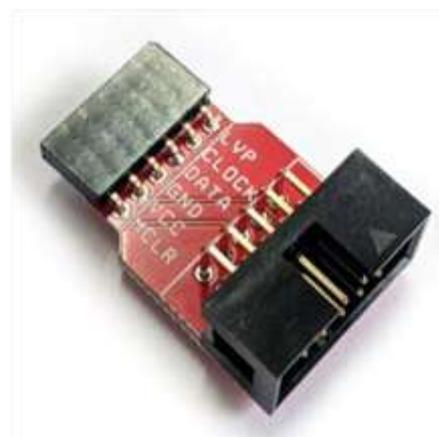
6-way flying leads

Brown	—	GND
Red	—	MCLR/Vpp
Orange	—	PGM/LVP
Yellow	—	Clk PGC
Green	—	VDD
Blue	—	Data PGD

PIC Keyfob programmer includes the VPP generator needed for HVP (High Voltage Programming). This is 9 V or 12.5V depending on PIC device series. For LVP, 6-way SIL connector supplied has LVP line for older devices that use separate LVP PGM pin.

6-way SIL Connector layout

- LVP
- CLOCK
- DATA
- GND
- VCC
- MCLR



- Portable
- Compact
- One button operation
- PIC18F and PIC16F families
- Field or production use
- 3V - 5.5V operation but Bulk Erase will not work below 4.5V
- LVP and 9-12V HVP modes

Device Support:

All PIC18F Devices but total memory available is 64KB.

PIC16F devices - see page 3

Note
 Programmer is powered from target and operates down to 3V but Bulk Erase command needs 4.5V minimum target voltage

For full 256KB including EEPROM, better low voltage support and faster programming speeds, see our Hand-held Programmer - PIC-HH0010U

Order Code
 PIC-KF0010U

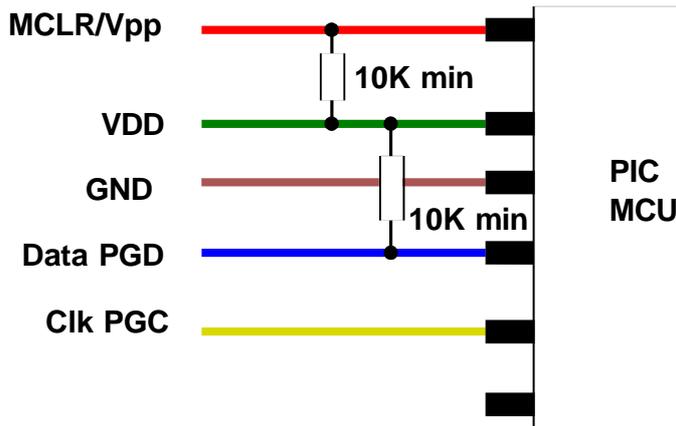
Programming Modes

The keyfob programmer supports both Low Voltage Programming (LVP) and High Voltage Programming (HVP) modes. You can select which mode you require during keyfob loading from the PC.

Target application must supply Vdd to programmer. Although the keyfob will work down to 3V, Bulk Erase will only work at target voltages above 4.5V. So locked devices can only be reprogrammed with VDD > 4.5V. Please ensure that your application does not affect Data, Clock and MCLR lines by using serial resistors or other method.

High Voltage Programming - HVP

For HVP mode, connect the supplied 12V generator board as shown above and leave PGM pin (LVP pin) disconnected. **Limitations:** If Configuration bytes are set to internal master clear and internal oscillator, the device will start to execute code before entering program mode because the MCLR pin will not hold it in reset. If you have this setup, use Handheld Programmer instead as it uses Vpp first method of entering program mode.



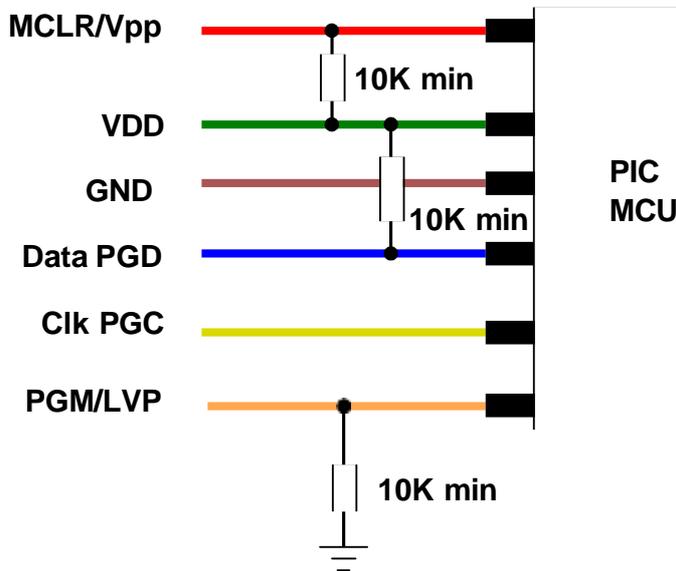
12V High Voltage Programming Mode

The resistor shown on Data line is optional, and can be up to 100K.

The resistor on MCLR/Vpp line must be included and should be in the range of 10K to 100K.

Low Voltage Programming - LVP

For LVP mode, omit the 12V generator board and connect PGM pin. Ensure Low voltage ICSP select bit is set during keyfob load.



5V Low Voltage Programming Mode

The resistor shown on Data line is optional, and can be up to 100K.

The resistor on MCLR/Vpp line must be included and should be in the range of 10K to 100K.

The pull-down resistor on PGM/LVP pin is required, and should be in the range of 10K to 100K



Embedded Results Ltd
 Canolafan, Llanafan
 Aberystwyth,
 SY23 4AY UK

Tel: +44 (0) 1974 261 273
Fax: +44 (0) 1974 261 273
Email: sales@kanda.com
Web: www.kanda.com