

 merlin™
remote control opens
security at your fingertips

M2000PE

access controller **for two doors**



Installation instructions

Toll free helpline

Please have your serial number and model name available before calling.

Australia 1800 638 234

New Zealand 0800 653 667

United Kingdom 0800 073 0112

www.merlingo.com

Important safety instructions

These warnings are an integral and essential part of the product, and must be delivered to the user. Read them carefully; they provide important installation, operating, and maintenance instructions. Keep this form and give it to any persons who may use the system in the future. Incorrect installation or improper use of the product may cause serious danger.

Installation instructions

Installation must be performed by a qualified professional and must observe all local, state, national and European regulations.

Before starting installation, make sure that the product is in perfect condition.

Laying, electrical connections, and adjustments must be done to "Industry Standards".

Packing materials (cardboard, plastic, polystyrene, etc.) are potentially dangerous. They must be disposed of properly and kept out of the reach of children

Do not install the product in an explosive environment or in an area disturbed by electromagnetic fields.

The presence of gas or inflammable fumes is a serious safety hazard.

Provide an over-voltage protection, mains/knife switch and/or differential on the power network that is suitable for the product and conforming to current standards.

The manufacturer declines any and all liability if any incompatible devices and/or components are installed that compromise the integrity, safety, and operation of the product.

Only original spares must be used for repair or replacement of parts.

The installer must supply all information regarding the operation, maintenance, and use of individual components and of the system as a whole.

Maintenance

To guarantee the efficiency of the product, it is essential that qualified professionals perform maintenance at the times and intervals required by the installer, by the manufacturer, and by current law.

All installation, maintenance, repair and cleaning operations must be documented. The user must store all such documentation and make it available to competent personnel.

Warning for users

Carefully read the enclosed instructions and documentation.

This product must be used for its intended purpose only. Any other use is improper and therefore dangerous. The information contained herein and in the enclosed documentation may be changed without notice, and are in fact provided in an approximate manner for application of the product. Merlin declines any and all liability in this regard.

Introduction

The M2000PE is an access controller for the operation of two doors.

It has an integrated Merlin high security code hopping radio receiver. It also has two Wiegand inputs for external readers, and two 9 V dc outputs to power them.

Two output relays, each with a 5-amp capacity, allow direct connection to electric locks.

An enabling link on the relays further allows either output to be controlled by one or two simultaneous inputs, for selected management of either person plus vehicle or personnel only.

An anti-pass back option allows for exit control management,

A 4-digit LCD display is used for programming and assigning readers or transmitters to a total memory capacity of 2000 users. The LCD momentarily displays the assigned code on each valid access.

Connection to the serial port of a PC running WIN-GT/SYSTEM software is possible using the INT485C adapter. This allows the remote entering or deletion of either individual or blocks of serial numbers. Alternatively, the handheld GT/SYSTEM terminal can be used. Four buttons, with colour ID and the aid of the LCD display, offer easy to use setup, programming, and parameter setting.

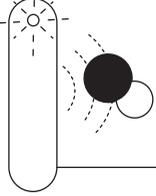
All settings can be password protected.

The M2000PE is housed in a plastic enclosure suitable for indoor installations and for DIN rail mounting.

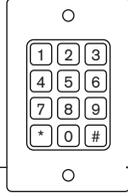
Radio interference

Radio interference can reduce the performance of radio frequency (RF) remote controls. RF remote controls are required to operate in shared radio frequency bands. Regulations permit other users to continuously operate higher powered devices such as baby monitors or wireless headphones in these shared bands. These devices may cause radio interference that reduces the performance of your remote control. Switch off interfering devices if possible.

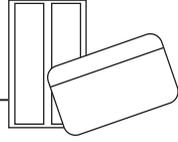
Any prox reader
generating
26 or 30-bit
Wiegand data



Or any keypad
generating
26 or 30-bit
Wiegand data



Or any ISO2 or
37-bit Wiegand
card reader

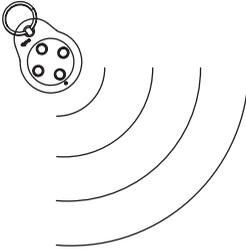


ISO2 or 37-bit Wiegand

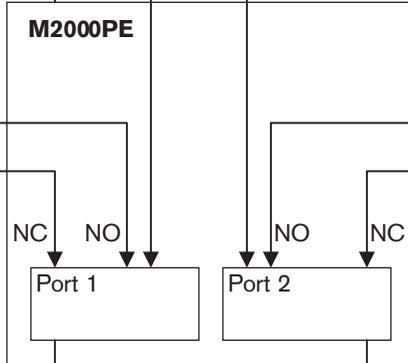
MW30
converter

30-bit Wiegand

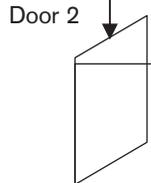
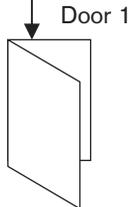
Any Merlin wireless remote control:
handheld, keyring, wall switch or keypad



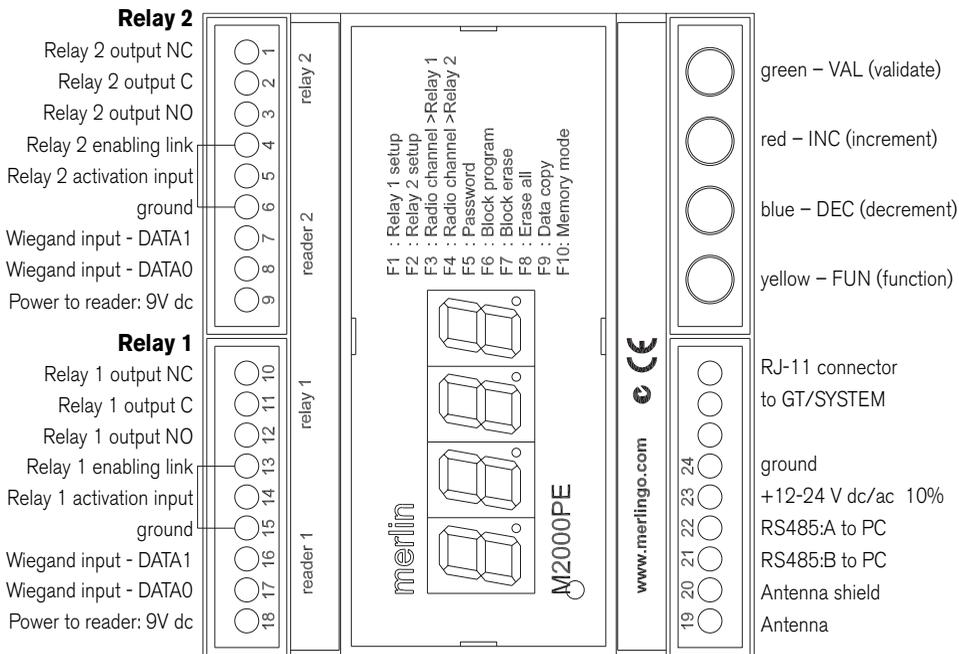
Rolling code
+ serial #
+ button #



- Validate rolling code (RF only)
- Validate serial no (2000 max)
- Detect passback (if req)
- Detect enabling loop
- Determine user group (if req)
- Activate relay (1-180 sec)



Connections



Note Make sure that terminals 4 & 6 and 13 & 15 are bridged if no enabling loop is used. Whatever bridges these terminals must be Normally Closed in order for each relay to operate.

When connecting a Merlin aerial to the antenna terminal, cut off the MCX connector and expose 20 mm of braid. Twist this and connect to the 'antenna shield' terminal. Connect the centre core to the 'antenna' terminal. Take care to avoid short circuits from stray strands of shield wire.

Over-riding pushbuttons or keyswitches connected to terminals 5 & 6 and 14 & 15 must be Normally Open.

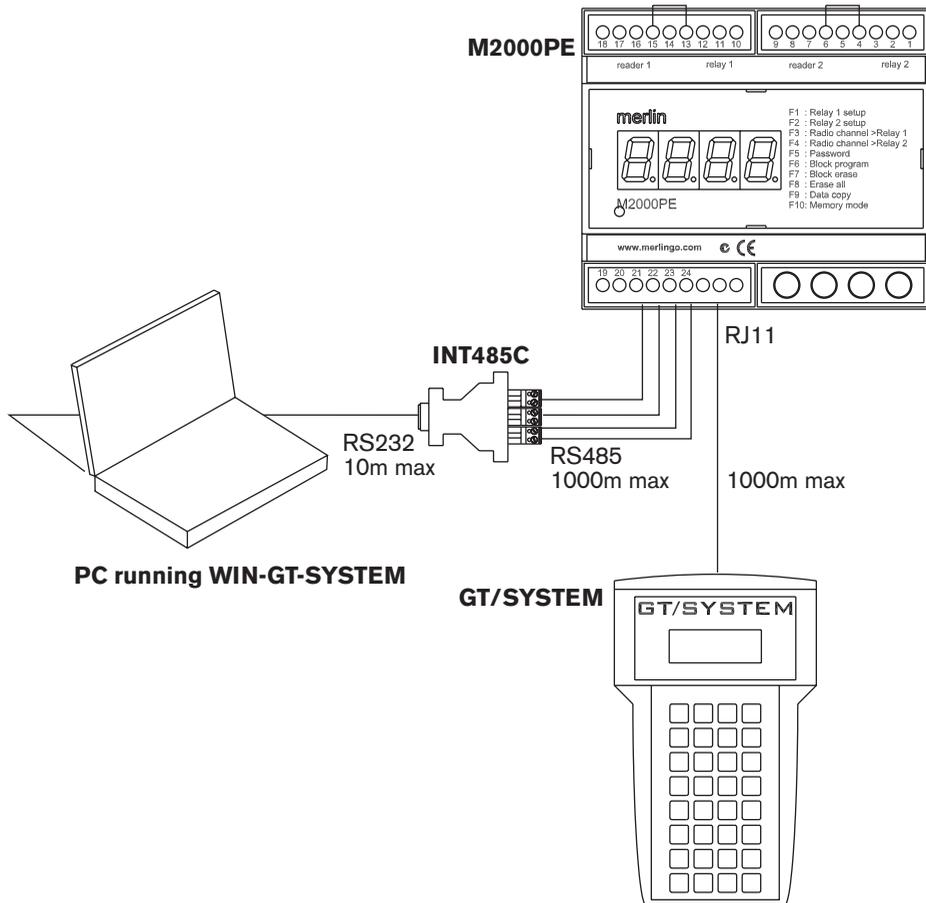
The maximum cable distance to readers is 100 metres.

Programming connections

It is possible to perform all the necessary programming from the front panel of the M2000PE. However, in some instances, it may be useful to programme it in other ways.

A PC running WIN-GT-SYSTEM software can be connected through an INT485C adapter. The PC requires a serial port.

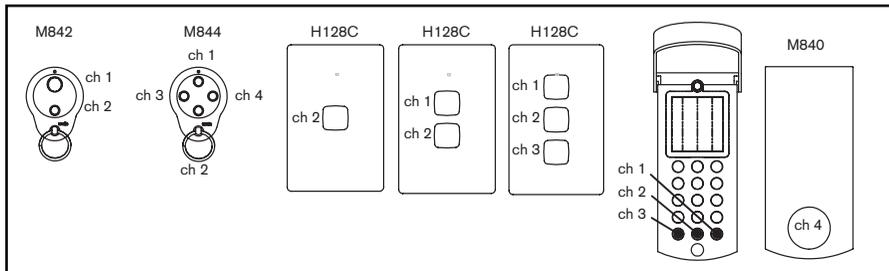
The handheld GT/SYSTEM programmer can be connected into the RJ11 port.



Setup

Note: VAL, DEC, INC, and FUN refer to the green, red, blue and yellow buttons on the M2000PE.

Channels 1 to 4 correspond to the buttons of the Merlin wireless devices as follows:



Assigning codes to memory

Memory locations range from 0001 – 2000. Any combination of wireless devices, proximity tags, card readers, or Wiegand keypads can be assigned to these locations. This can be done by accessing programming mode, selecting which memory space is to be used, and then assigning the device.

- Simultaneously press INC & DEC to enter programming mode.
- Select a free location by scrolling with INC & DEC from 0001 to 2000. A free location is indicated by decimal points being off.
- Press wireless device button once (any button), or have the badge read by reader. The decimal points will switch on e.g. 0.0.0.1.
- Press VAL to confirm. The decimal points will briefly flash when the assignment is complete.
- Repeat steps b) to d) to assign more devices, or simultaneously press INC & DEC to exit programming mode.

Note that codes can alternatively be assigned in blocks using the F6 function described later.

Deleting codes from memory

Deleting an assignment from an individual location is described below. Bulk and block erase options are described later.

- Simultaneously press INC & DEC to enter programming mode.
- Scroll using INC & DEC to display the location whose code is to be deleted. Decimal points will be on, e.g. 1.0.2.3.
- Press VAL to confirm. The letter C will appear on the left of the display.
- Press VAL again to confirm deletion. The assigned code will be deleted and the decimal points will go off, e.g. 1 0 2 3
- Repeat steps b) to d) to delete more devices, or simultaneously press INC & DEC to exit programming mode.

F1, F2: relay 1 setup, relay 2 setup

Relays can be individually programmed to either toggle or operate for a period of 1 –180 seconds

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F1 or F2 (relay 1 or relay 2).
- d) Press VAL to confirm. The current parameter value will be displayed, e.g. 0002
- e) Select the value to be assigned with the scroll keys. If 0000 is set then the relay states will toggle (bistable operation). If a value of between 0001 & 0180 is set, then the relay will be energised for that many seconds (monostable operation)
- f) Press VAL to confirm. Display will return to function selection.
- g) Repeat steps c) to f) for the other relay, or simultaneously press INC & DEC to exit programming mode.

F3, F4: Radio channel > Relay 1, 2

Functions F3 & F4 assign relays 1 and/or 2 to wireless device button 1, 2, 3, or 4. For example if you assign F3 & F4 to button 1, both outputs will operate simultaneously from that button.

The default setting assigns button 1 to operate relay 1 (F3) and button 2 to operate relay 2 (F4).

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display either F3 or F4 (relay 1 or relay 2).
- d) Press VAL to confirm. The current parameter value will be displayed e.g. _CH1
- e) Scroll to select the desired radio transmitter channel, i.e. _CH1, _CH2, _CH3, _CH4
- f) Press VAL to confirm. Display will return to function selection.
- g) Repeat steps c) to f) for the other relay, or simultaneously press INC & DEC to exit programming mode.

F5: Password

Password protection can be set if required. If used, the password will be requested on every access to the programming mode. The password is set by pressing any 6-key combination of the 4 coloured keys. This results in 4096 possible passwords.

It is strongly recommended to write down the combination prior to setting. If a password is forgotten or lost then the M2000PE must be returned to the supplier. Note that all memory will be cleared and so all card and wireless device assignments will require re-entering.

To enter a password:

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.

- c) Scroll using INC & DEC to display F5.
- d) Press VAL to confirm. The letter P will appear on the left of the display.
- e) Using the 4 coloured keys, enter a total of 6 presses of any combination. E.g. Enter: yellow, blue, red, green, yellow, and blue. (Be sure you write down the sequence first.) The letter P will flash each time a digit is entered.
- f) A correctly coded sequence will return the display to F5. Note that the sequence must be completed within 10 seconds.
- g) Simultaneously press INC & DEC to exit programming mode.
A password can only be deleted if it is known.

To delete a password

- a) Simultaneously press INC & DEC to enter programming mode. The password will be requested.
- b) Key in password.
- c) Press FUN to access the function selection menu.
- d) Scroll using INC & DEC to display F5.
- e) Press VAL to confirm. The letter P will appear on the left of the display.
- f) Wait approximately 10 seconds. Once the display returns to F5 the password has been deleted.
- g) Simultaneously press INC & DEC to exit programming mode.

F6: Block program

Block entry of codes can be performed with sequential prox tags or cards.

Note that Merlin high security code hopping wireless devices can not be entered in this manner, due to the additional security of the code hopping validation that each device requires.

The required lower and upper free locations are selected. The lowest serial number card or tag is assigned to the lower free location and the remaining locations are automatically filled with the remaining serial numbers.

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F6.
- d) Press VAL to confirm. The lowest unassigned location will appear on the display. (Default is 0.001) Note the left decimal point is on, indicating that this location is the lower bound of the range.
- e) If required, scroll using INC & DEC to alter the lowest location to be used, e.g. 0.020
- f) Press VAL to confirm. The highest unassigned location will appear on the display. (Default is 0001.) Note the right decimal point is on, indicating that this location is the upper bound of the range.
- g) Scroll using INC & DEC to display the highest unassigned location, e.g. 0029.

- h) Press VAL to confirm. The lower bound will now be displayed again, e.g. 0.020
 - i) Pass the lowest serial number card or tag through the reader once, e.g. serial no. 12350. All decimal points will display if the first code is successfully assigned, e.g. 0.0.2.0.
 - j) Press VAL to confirm. Display will return to the function selection menu.
 - k) Simultaneously press INC & DEC to exit programming mode.
- All remaining cards or tags should now be automatically sequentially assigned to locations.

F7: Block erase

To erase a block of codes from memory.

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F7.
- d) Press VAL to confirm. The lowest required location for deletion will appear on the display. (Default is 0.001) Note the left decimal point is on, indicating that this location is the lower bound of the range.
- e) If required, scroll using INC & DEC to alter the lowest location to be deleted, e.g. 0.020
- f) Press VAL to confirm. The highest location for deletion will appear on the display. (Default is 0001.) Note the right decimal point is on, indicating that this location is the upper bound of the range.
- g) Scroll using INC & DEC to display the highest location for deletion, e.g. 0029.
- h) Press VAL to confirm. The letter C will be displayed.
- i) Press VAL again to confirm the block erase. Codes in all locations from the lower to the upper selection will be deleted. Display will return to the function selection menu.
- j) Simultaneously press INC & DEC to exit programming mode.

F8: Erase all

Codes can be erased from all locations. However this will not affect other stored parameters such as relay times or channel assignments.

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F8.
- d) Press VAL to confirm. The letter C will be displayed.
- e) Press VAL again to confirm the bulk erase. Codes in all locations will be deleted. Display will return to the function selection menu.
- f) Simultaneously press INC & DEC to exit programming mode.

F9: Data copy

Codes may be transferred serially in blocks from locations in one M2000PE to the same

locations in another M2000PE, or to a PC running the WIN-GT/SYSTEM programme. It is possible to add or delete serial numbers using the PC and transfer these to the M2000PE, instead of directly entering each device using a reader or through the receiver. Connect the M2000PE to another M2000PE using the RJ-11 plug. Connect to a PC using screw terminals 21 and 22 (see page 5) and INT485C.

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F9.
- d) Press VAL to confirm. The lowest required location for transfer will appear on the display. (Default is 0.001) Note the left decimal point is on, indicating that this location is the lower bound of the range.
- e) If required, scroll using INC & DEC to alter the lowest location to be transferred, e.g. 0.020
- f) Press VAL to confirm. The highest required location will appear on the display. (Default is 0001.) Note the right decimal point is on, indicating that this location is the upper bound of the range.
- g) Scroll using INC & DEC to display the highest location for transfer, e.g. 0029.
- h) Press VAL to confirm. The display will show _ _ _ _
- i) Press VAL again to confirm the transfer. The display will flash _ _ _ _ while the codes in all locations from the lower to the upper selections are being transferred. Display will return to the function selection menu.
- j) Simultaneously press INC & DEC to exit programming mode.

Note that pressing FUN will revert the unit back to the function selection menu unless data transfer has commenced.

Note: Data will only show on the PC once it has been copied from the M2000PE module. Data entered into the PC will only show on the M2000PE module once it has been copied to the module.

This is achieved from the 'memory' menu, 'copy' option, 'file to module', or 'module to file'

F10: Memory mode

Three different relay assignment options for wireless devices are available on the M2000PE unit: F, H, & P. Note that using H or P option will result in all code stored in all locations to be deleted.

- F This is the default mode, where relays are activated according to their assignment in F3 and F4. Namely:
 - All locations activate relay 1 from a particular wireless channel, set up using F3
 - All locations activate relay 2 from a particular wireless channel, set up using F4This function is useful to allow all users to operate each relay from the same channels on their remotes.
 - One channel can operate both relays, or different channels can operate each relay.

- H This mode is to allow some restriction on user access to some doors. Namely:
Locations 0001 to 1000 activate relay 1 only; select which radio channel using F3
Locations 1001 to 2000 activate relay 2 only; select which radio channel using F4
If one wireless device is to operate two relays, then it must be assigned to two locations, for example:
Location 0001, channel 1 (button 1), relay 1
Location 1001, channel 2 (button 2), relay 2
And so a user who is allowed to access only one relay should only be stored in only one location.
- P This anti-pass back function is useful to prevent multiple entries without exiting using the same card.
Card must be assigned to relay 1 and to relay 2.
Relays must be activated in sequence by the same card.

To select F, H, or P options:

- a) Simultaneously press INC & DEC to enter programming mode.
- b) Press FUN to access the function selection menu.
- c) Scroll using INC & DEC to display F10.
- d) Press VAL to confirm. The display will show the current mode selected, e.g. F
- e) Scroll using INC & DEC to display F, H, or P
- f) Press VAL to confirm. The display will return to the function selection menu.
- g) Simultaneously press INC & DEC to exit programming mode.

Warranty

Receiver/controller Limited Warranty

Merlin warrants to the original purchaser ("the Buyer") that the Merlin receiver/controller ("the Unit") sold under this warranty will be free from defects in materials and workmanship for a period of 24 months from date of purchase.

Accordingly if the Unit fails due to defects in materials or workmanship within the warranty period Merlin will, provided the defective part or Unit is returned freight and insurance prepaid and well packaged to the nearest address listed in this manual, undertake to repair or, at its option replace, any defective part or Unit and return it to the Buyer at no cost. Repairs and replacement parts are warranted for the remaining portion of the original warranty period.

Limitations

It expressly excludes any batteries and malfunctions or defects to the Unit or its operation due to any of the following:

- A Failure to observe installation, adjustment, maintenance or operating instructions provided with the Unit;
- B Incorrect installation, operation or adjustment of any device to which the Unit is fitted;
- C Connection to any device outside the specifications set out in the owners manual;
- D Any modification or repair to the Unit carried by a person not authorised to do so by Merlin;
- E Radio or any other electrical or electronic interference;
- F Faulty or unsuitable electrical wiring of the building to which the Unit is attached;
- G Faulty or flat batteries in the remote control transmitter;
- H Where the defect is due to: conditions other than normal domestic use or dirt, misuse, neglect, fire, accident, electrical storm or other act of God.

This warranty is void if the serial number has been altered, defaced or moved. The liability of the Distributor for any loss or damage or injury arising directly or indirectly from any defect in the goods supplied is limited to the replacement or repair of such goods or to damages not exceeding the invoice value of such goods at the option of Merlin.

Future Modifications

Merlin may modify any existing or future model of the Unit without the obligation to incorporate these modifications into Units already manufactured or into the Unit to which this warranty applies.

General

This warranty is the only Warranty made by Merlin. All other warranties, representations and conditions of any kind, express or implied, are hereby excluded. Nothing in this warranty is intended to have the effect of contracting out of the provisions of the Consumer Guarantees Act (1993) except to the extent provided by that Act and all provisions of this warranty shall be read and modified to the extent necessary to give effect to that intention. This warranty does not deprive the Buyer of any rights conferred upon them by any appli-

cable law or statute in their country of purchase.

Proof of date of purchase may be required when making a claim under warranty. In the event that the Buyer is unable to provide adequate proof of purchase the date of warranty will apply from date of shipment from the Distributor to the Reseller.

NOTE We request that you attach your sales docket or invoice to this manual to enable you to establish the date of purchase in the unlikely event of a service call being made.

In-warranty service During the warranty period, if the product appears as though it may be defective, call our toll free service before removal of the unit. A Merlin technician will diagnose the problem, or provide you with shipping instructions for a factory repair or replacement. If an Authorised Installer installed your unit you must call them for prompt on-site service.

After warranty Need help after the warranty period? Need help obtaining parts, service and accessories? See your yellow pages or phone Merlin toll free.

Specifications

Receiver type	Super heterodyne, SAW filtered, 433.92 MHz, FM – FSK
Compliance	C-tick and CE
Input voltage	12–24 V ac /dc +/- 10%
Power consumption	100 mA
IP rating	IP33, for indoor use only
Dimensions	105 x 90 x 60h
Weight	350 grams
Input types	Merlin high security code hopping wireless device, 4 channels: 2 x Wiegand data, 26 or 30 bit (no settings required); 37 bit using optional MW30 converter 2 x PB (wired push button, Normally Open)
No of output channels	2
Output type	relay contacts, timed from 1-180 sec, or toggling
Output assignment	each relay assignable to any wireless channel or card reader; restricted assignment for some users
Max switching load	5A at 30 V dc
Number of users	2000 in any combination of wireless or wired devices
Password protection	6-key sequence of four buttons
Power out to reader	9v dc

Accessories

MW30

Converter for either mag stripe (ISO2) or 37-bit Wiegand readers to connect to the 26 or 30-bit Wiegand input on the M2000PE.

GT/SYSTEM

Handheld programmer for connection to M2000PE, or M200R or M1000R memory modules.

WINGTSYSTEM

Software for a PC to be connected to the M2000PE.

INT485C

Converter from RS485 to RS232. Used to connect a PC with a serial port to the M2000PE.

M001

Externally mountable aerial with ground plane for potential RF performance improvement. Has 2 m of cable and an MCX connector.

M002

10 metre extension cable for M001, with MCX connector fitted.

Input devices

Proximity reader

Any reader with Wiegand 26 or 30-bit data output.

Combination device

Any reader with Wiegand 37-bit output (requires MW30 converter)

Merlin M842IT (two button keyring remote control with internal proximity tag)

Merlin M842IT (four button keyring remote control with internal proximity tag)

Mag-stripe reader

Any Wiegand 26 or 30-bit output reader. Any ISO2 output reader (req. MW30 converter)

Wired keypad

Any keypad with Wiegand 26 or 30-bit data output.

Any keypad with Wiegand 37-bit data output (requires MW30 converter)

Keyring remote control

Merlin M842I (two button)

Merlin M844I (four button)

Wireless keypad

Merlin M840 (wall mount, weather resistant)

Wireless wall-switch

Merlin H128A (one button)

Merlin H128B (two button)

Merlin H128C (three button)

Merlin service centres

New Zealand

Auckland phone 09 415 4393

Phone toll free 0800 653 667 or 0800 MERLIN

Fax toll free 0800 653 663

Australia

NSW, Vic, Qld, WA

Phone toll free 1800 638 234

Fax toll free 1800 888 121

Europe

United Kingdom

Phone toll free 0800 073 0112

Fax +44 1709 514 534

SE Asia

Malaysia

Phone 03 3323 6026

Fax 03 3323 7026

www.merlingo.com