



ORILINK[®]
MONITORING SYSTEM
KEYPAD MODULE 23401 (REGULAR)
23441 (PANEL MOUNTED)
23442 (WITH SERIAL PORT READER +
EXTRA POWER SUPPLY)



(Covers KP with PCB version 203 02 65 D, 203 02 90A and C. Some features may be missing in earlier versions)



Table of Contents

1. INTRODUCTION	3
2. MECHANICAL INSTALLATION	3
3. ELECTRIC INSTALLATION	4
4. CONFIGURATION	6
4.1. CHECK BEFORE CONFIGURATION	6
4.2. ADDRESSING THE NEW MODULE	6
4.3. SET-UP MODE.....	6
4.4. CHANGE ADDRESS [KP//ADDRESS]	6
4.5. RECOMMENDATION FOR SETTING ADDRESSES	7
4.6. CHANGE SPHERE NUMBER [KP//SNR:].....	7
4.7. SET-UP FOR READER INPUT, [KP//BAUD:].....	7
5. USING A KEYPAD MODULE	8
6. SET TIME AND DATE	8
6.1. SET DATE [CLOCK/DATE] AND [CLOCK/TIME].	8
7. INSTALLING A SERIAL PORT KIT (23 415)	9
8. FAST MENU CODES	10
9. DIRECT COMMANDS	10
9.1. VER COMMAND.....	10
9.2. BOOT COMMAND.....	10
10. OPTIONAL BACK COVER FOR PANEL MODEL, PN 233 01 34	11
11. OPTIONAL DC-DC CONVERTER	12
12. TECHNICAL SPECIFICATION	13

1. Introduction

The KeyPad is the tool that is used to configure an OriLink® monitoring system, as well as initiate dispenses, stop dispenses and check previous dispenses.

NOTE! The Orilink® installation manual should be available when installing and configuring a KeyPad.

2. Mechanical installation

The KeyPad is mounted at a visible place within comfortable reach of the user using the two holes in the bottom.

It is possible to mount the lid with the keys and display in two ways, with the display window either in the deep end or the shallow end. There are two “Knock-Out” cable inlets Ø16mm in both of the short sides of the box. Other cable inlets can be drilled in either the short sides or in the bottom of the box.

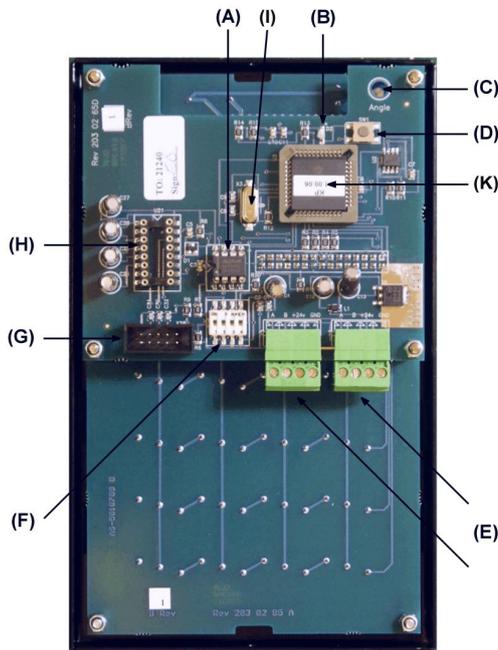
NOTE! When the display window is placed towards the deep side of the box it is possible to let a cable in at both of the short sides of the box.

NOTE! When the display window is placed towards the shallow side of the box it is only possible to let a cable in at the deep side of the box if the PCB is 203 02 65 A or B.

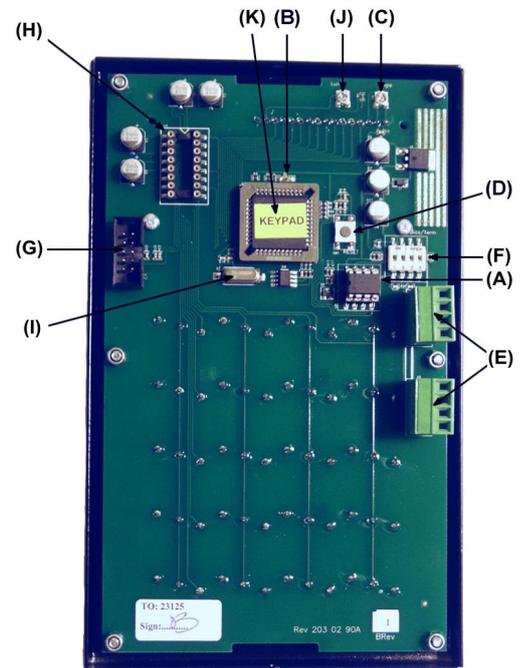
NOTE! With the 1 card model PCB part number 203 02 90A the display window can be placed both ways and it is still possible to let cables in at both ends.

3. Electric installation

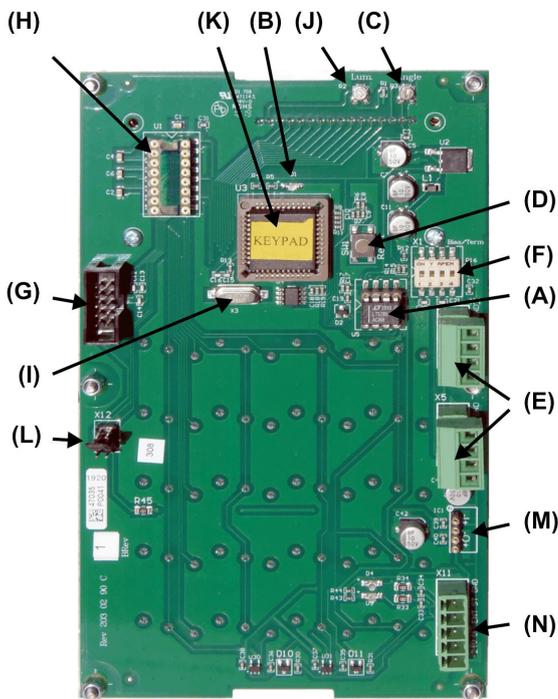
The module has a number of connectors, sockets and controls. Where they are depends on if it is a 2 card keypad or a 1 card keypad.



2-boards, buttons pn 203 02 85 and CPU pn 203 02 65



Single board pn 203 02 90 A



Single board pn 203 02 90 C, current production

- (A) Shows the replaceable communication driver.
- (B) If this LED flashes it indicates that the MPDM is working properly. If the LED is unlit or constantly lit something is wrong.
- (C) The angle of sight (contrast) can be adjusted with this trim screw.
- (D) Shows the location of the RESET-button.
- (E) Point out the location of the two 4-pole communication connectors each marked with **A**, **B**, **+24 V** and **God**. Connect these to the communication loop in the existing system. Follow the cable recommendations in the **Orilink® installation manual**. The module gets its power supply through the communication cable.
- (F) DIL switches for termination and BIAS are found here.
- (G) Is the connector for the optional serial port.
- (H) Shows the socket for the serial port driver.
23442 already has a serial port driver installed.
- (I) Processor crystal, 4MHz standard for 2 card model and 25 MHz standard for 1 card model.
- (J) Back light intensity, only on 1 card model
- (K) Microcontroller chip, white label OTP or yellow label FLASH. The 1 card model must have FLASH chip but the 2 card model can use both OTP and FLASH.
- (L) Jumper socket. Can be used to increase power to port powered devices.
Top position = Join logic signals TX and RTS giving increased power to reader
Middle position = Jumper parking, default and most common
Bottom position = Uses Vu (connector N) as pull-up for DTR/RTS.
- (M) DC-DC converter socket. A DC-DC converter with cap ??? can be inserted here. It will convert the on board 24VDC to another voltage like 5, 9, 12 or 15VDC on the connector (N) pin Vu. The voltage Vu is defined by the selected DC-DC converter. There are many different brands and voltages of suitable DC-DC converters.
23442 already has a 5V 1W 200mA DC-DC converter installed.
- (N) Connector for external use. Pins are
GND
ST = STOP, can be used to get an external button for the STOP key
ENT = ENTER, can be used to get an external button for the ENTER key
Vu = Output voltage. Voltage depends on the DC-DC converter inserted in socket (M)
+24V = 24VDC output

4. Configuration

An OriLink® configuration sheet should always be filled or altered during the configuration.

NOTE! To obtain technical support a copy of the configuration sheet for the complete installation must be sent to:

Alentec & Orion AB
TECHNICAL SUPPORT
 Grustagsvägen 4
 SE-138 40 ÄLTA
 SWEDEN

or

orilink@alentec.se

4.1. Check before configuration

Check that the module is working and communicating with the system according to the OriLink® Manual chapter Testing modules.

NOTE! Do not forget to check and adjust the termination and BIAS according to the OriLink® Manual.

4.2. Addressing the new module

A new module has no address on delivery. To address a new module or one with an unknown address you press and hold the RESET-button for 5 seconds. This will give the module a temporary address. Next, enter SET-UP mode on a KeyPad and press 0 + ENTER to access the Main menu of the module. Find the menu to change module-address (see below).

NOTE! You can only install one module at a time using this method. If you hold the RESET-button on multiple units simultaneously only the most recently activated is active.

TIP! Follow preferably "Recommendation for setting addresses" when setting addresses.

4.3. SET-UP mode

Type the word "SETUP" on a KeyPad and press ENTER.

Type the password and press ENTER.

```
Reel:SETUP  ‡
EXIT STOP CE ENT
```

Type the address of the LED you want to configure and press ENTER to access its main menu.

```
PASS:_ ‡
Enter password
```

You can add the 4-digit menu code to go directly to the desired menu.

```
Addr:3???_ ‡
Address[code]
```

Scroll through the module sub menus by pressing ↑ or ↓. When the desired menu is shown press ENTER and so on.

```
KP: ‡
KP Main menu
```

4.4. Change address [KP//Address]

Enter the [KP//Address] by pressing ENTER

Press ENTER to show the cursor.

```
KP: ‡
KP Main menu
```

Type the desired address confirm with ENTER.

```
Address:3XXX ‡
Set Address 3???
```

When the cursor vanishes you are finished.

```
Address:3XXX ‡
Set Address 3???
```

Press EXIT twice to exit set-up.

```
Address:3XXX ‡
Set Address 3???
```

NOTE! If two or more modules get the same address the system will not work. In that case you have to change address again.

TIP! Preferably follow "Recommendation for setting addresses" when setting addresses.

4.5. Recommendation for setting addresses

Each module demands a unique 16 bit hexadecimal address. There are some forbidden and some reserved addresses but it is possible to use all addresses between 0001 and 9999. To make it easier to support the system we recommend you follow the table to the right.

This means for example that the first KP should have the address 3001 and the next one 3002. It is a good idea not to use the default address 3000, it makes it easier to add new KP's.

NOTE! Do not forget to write all used addresses in the Configuration sheet to avoid collisions.

NOTE! Address 0000 is forbidden and addresses larger than 9999 are reserved for the system.

Address	Module
0000 – 0xxx	Forbidden
1000 – 1xxx	MPDM
2000 – 2998	PM with database
2999	PC database (reserved)
3000 – 3xxx	KeyPad
4000 – 4xxx	LED-display
5000 – 5xxx	PLC-modules
6000 – 6xxx	Reserved
7000 – 7xxx	Reserved
8000 – 8xxx	TCM/TSM
9000 – 9xxx	Other
A000 – FFFF	Forbidden

4.6. Change Sphere number [KP//Snr:]

Spheres can be used to connect a keypad exclusively to a certain workplace or department. This function is disabled if a OTP chip is used (**White label**) and enabled if a flash chip is used (**Yellow label**). See chapter “3. *Electric installations*”.

Enter menu [KP//Address] by pressing **ENTER**.

Scroll to menu Snr: by pressing **↑** or **↓**.

Press **ENTER** to get the cursor.

Type in the **desired sphere** and acknowledge by pressing **ENTER**. When the cursor disappears it is finished.

Press **EXIT** twice to leave Set-Up mode.

```

KP:                ‡
KP MainMenu

Address:3XXX      ‡
Set Address 3???

Snr:XXX           ‡
Set Sphere 0-255

Snr:XXX           ‡
Set Sphere 0-255

```

4.7. Set-up for reader input, [KP//Baud:].

The keypad is prepared for handling values input by some kind of reader. To be able to connect a reader to the keypad a serial port kit (part number 23 415) has to be installed.

The keypad software will auto detect the presence of this kit (the serial driver chip).

The kit can be seen in chapter “10. Technical specification”.

A keypad with an installed serial port kit, see chapter “7. Installing a serial port kit”, has advanced functions for handling different types of RS-232 serial readers such as barcode, magnetic card, smart card, etc readers.

It uses 8 data bits, no parity and 1 stop bit asynchronous or synchronous communication..

The baud rate can be set to different speeds depending on the keypad model and chip.

All models and chip types can be set to 1200 or 2400 baud.

For a single board keypad 1200, 2400, 4800, 9600, 14400 and 19200 can be used.

Advanced input filtering can be used to extract only needed values. If a not valid baud rate is set the 1200 baud rate will be saved.

Readers can be used in a system without a PC but on older systems the baud rate and the functionality can only be set by using a PC with OriLink® WinTools professional installed.

For newer systems or recently updated systems it is possible to set the baud rate from a keypad but to set other functionalities a PC with OriLink® WinTools professional is still needed.

All settings are saved in a flash memory and remains if the power is disconnected.

```

KP:                ‡
KP MainMenu

Address:3XXX      ‡
Set Address 3???

Snr:XXX           ‡
Set Sphere 0-255

Baud:XXX          ‡
Set baud rate !

Baud:2400_        ‡
Set baud rate !

```

The set baud rate function from a keypad only exists if a flash chip is used (**Yellow label**), see chapter “3. *Electric installations*”, and the chip software version is KP10010RC2 or later.

Enter menu [KP//Address] by pressing **ENTER**.

Scroll to menu Baud: by pressing ↑ or ↓.

Press **ENTER** to get the cursor.

Type in the **desired Baud rate** and acknowledge by pressing **ENTER**. When the cursor disappears it is finished.

Press **EXIT twice** to leave Set-Up mode.

5. Using a Keypad module

The keyboard of the Keypad is equipped with multifunctional buttons. The figures 0-9, left and right arrow, STOP, EXIT, CE, ENTER and (.) is accessed directly. They have **white text**.

The **Alphabet** is accessed by first pressing **blue ↑**, **yellow ↓** or **two times yellow ↓**.

Do not press and hold the arrow button.

The blue letters are typed by using **first the blue ↑** and then **the button with the letter**.

The yellow letters are accessed by **first pressing the yellow ↓** and then **the button with the letter**. On buttons with two yellow letters, [Ö Ø Æ Å], pressing **first yellow ↓ twice** and then **the button with the letter will let you access the lower letter**. The active letter is shown in the upper right corner of the display.

On some models of keypads the “space” and “-“ is missing on the layout. You can access them as follows.

To enter a “space” press yellow ↓ twice and then “9”.

To enter a “-“ sign press yellow ↓ twice and then “?”.

NOTE! Letters can be used for PIN codes, JOB numbers, names and passwords.

EXIT is used to leave without doing more changes. By typing an identification string and then the STOP button you cancel the current process. CE button erases a typed value. ENTER acknowledge that something should be done.

6. Set time and date.

If the system is equipped with a real-time clock module (CM) this can be configured using a Keypad

6.1. Set date [CLOCK/Date] and [CLOCK/Time].

Type the word “CLOCK” on the Keypad and press **ENTER**.

```
Reel:CLOCK_  ‡
EXIT STOP CE ENT
```

Current system date is shown. Press **ENTER** to set date or ↓ and **ENTER** to set time.

```
Date:01.11.28  ‡
FORMAT YY.MM.DD
```

When the cursor is displayed, type the correct date or time and press **ENTER**.

```
Date:01.11.28  ‡
FORMAT YY.MM.DD
```

When the cursor disappears the new setting is applied.

NOTE! Do not forget the dot between HH.MM.SS/YY.MM.DD!

```
Time:09.30.25  ‡
FORMAT HH.MM.SS
```

Press **EXIT twice** to exit configuration.

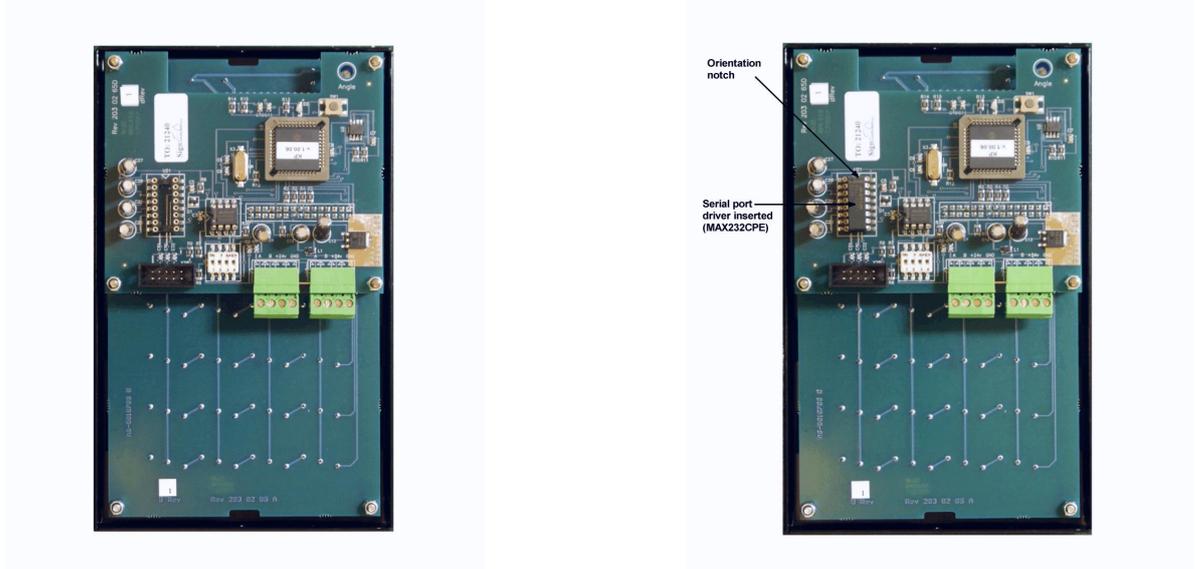
```
Time:09.30.25  ‡
FORMAT HH.MM.SS
```

NOTE! It may take up to five minutes before all modules are updated.

7. Installing a serial port kit (23 415) (not needed for 23442)

The serial port kit can be seen in chapter “9. Technical specification”.

Open the keypad and insert the RS-232 serial driver in its socket (H). Make sure that all legs are properly inserted and

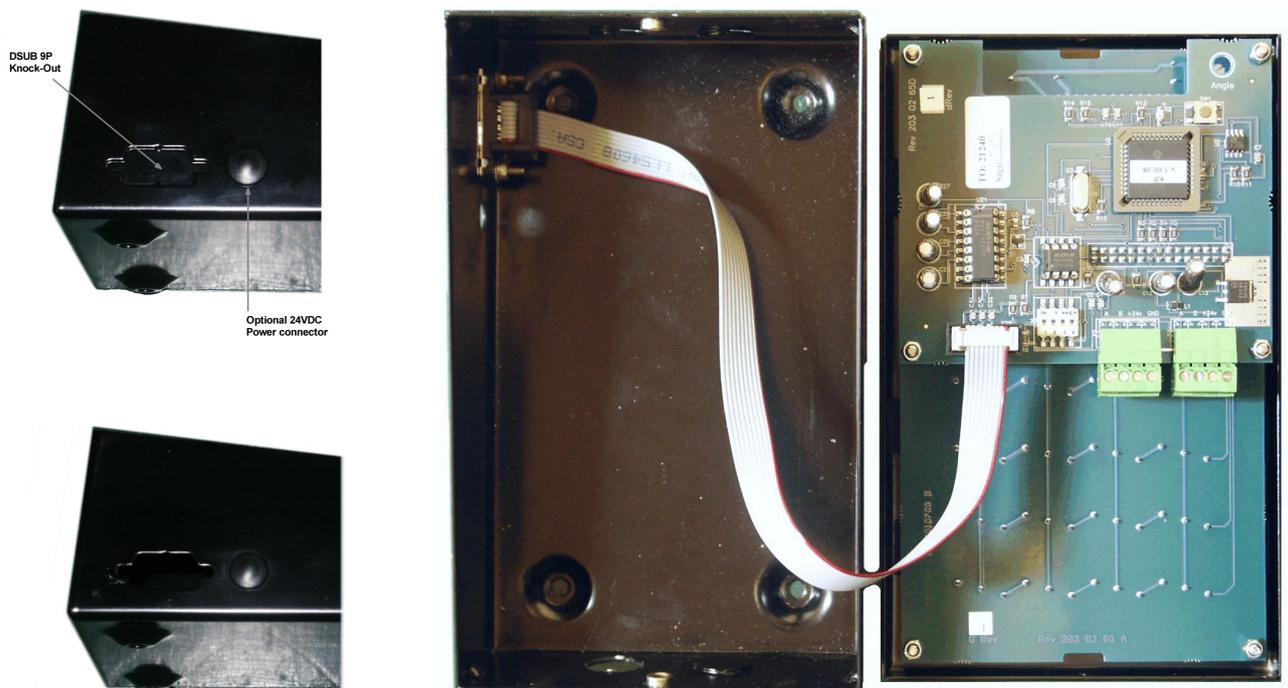


that the driver chip is oriented the correct way.

Remove the DSUB 9-pole knockout.

Mount the 9-pole DSUB connector of the serial port cable in the hole and attach the 10-pole DIL-conductor on the keypad PCB.

After the hardware installation the keypad has to be set to handle the serial port properly. This can only be done from a PC running OriLink® WinTools professional. After the setup is done there is no need for a PC to use the serial port.



8. Fast Menu Codes

With a PC, the OriLink® WinTools software and a SIO the quick menu that appear when you press “?” can be adjusted. Typing a menu name, the module address and then a code can do this. Password can be used if desired.

This code can also be entered together with the address after you have typed SETUP followed by the password.

For a Keypad it will look like this:

Change address 30000800 YYYYYY where YYYYYY=password

Part	Function	Address	Code	Comment
Main menu	Change address		0800	
	Change Sphere		0801	
	Change Baud rate		0803	
	VTime		0010	Sets prompt time-out in seconds

9. Direct commands

The keypad supports some direct commands.

9.1. VER command

Typing VER followed by <ENTER> will show

1. Software version as
v[KP10010]
2. Clock speed as
[Crystal=25MHz]
3. Address and Sphere
a[3001] s[2]

9.2. BOOT command

Typing BOOT followed by <ENTER> will reboot the module and show

1. Software version as
v[KP10010]
2. Clock speed as
[Crystal=25MHz]
3. Address and Sphere
a[3001] s[2]

10. Optional back cover for panel model, pn 233 01 34.

This product is intended as a mechanical protection of the electronics. When this is used the four corner screws fits in the 4 corner threads of the cover.



The dimensions are

Height = 200 mm

Width = 150 mm

Depth = 42 mm

Weight = 0.2 kg

11. Optional DC-DC converter (not needed for 23442)

By adding a suitable 4-pin SIP package DC-DC converter to the socket (M) the Keypad can give a power supply to connected readers.

Suitable DC-DC converters are manufactured by several brands. Here is a list of some of them

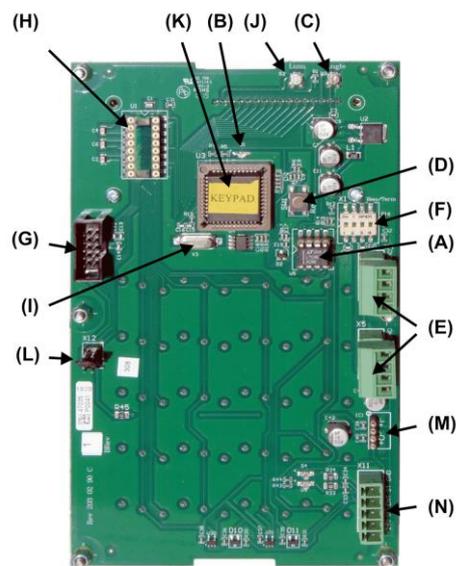
Brand	Example picture	Model	Input voltage VDC	Output VDC	Max output mA
TRACO		TME 2405S*	24VDC	5	200
		TME 2409S	24VDC	9	110
		TME 2412S	24VDC	12	80
		TME 2415S	24VDC	15	65
RECOM		RM 2405S	24VDC	5	50
		RM 2409S	24VDC	9	28
		RM 2412S	24VDC	12	21
		RM 2415S	24VDC	15	17
		RO 2405S	24VDC	5	200
		RO 2409S	24VDC	9	111
		RO 2412S	24VDC	12	83
		RO 2415S	24VDC	15	66
		RI3 2405S	24VDC	5	600
		RI3 2409S	24VDC	9	333
		RI3 2412S	24VDC	12	250
		RI3 2415S	24VDC	15	200
XPower		IK 2405SA	24VDC	5	50
		IK 2409SA	24VDC	9	28
		IK 2412SA	24VDC	12	21
		IK 2415SA	24VDC	15	17
		IE 2405S	24VDC	5	200
		IE 2409S	24VDC	9	111
		IE 2412S	24VDC	12	84
		IE 2415S	24VDC	15	66
		IL 2405S	24VDC	5	400
		IL 2409S	24VDC	9	222
		IL 2412S	24VDC	12	168
		IL 2415S	24VDC	15	132
*) DC-DC Converter which is included in 23442					

Make sure that it is inserted on the correct way before power on. As you can see in the sample pictures pin 1 is marked with a small white dot. A white circle is printed on the PCB to indicate where pin 1 should be.

12. Technical specification

Printed circuit board

- Net ports:** 2 pieces of OriLink® ports (E) for data-communication.
- Connector:** 1 piece of serial port connector (G).
- Socket:** 1 piece of 16-pin DIL-socket (H) for a MAX232CPE serial port driver.
- Socket:** 1 piece of 4-pin SIL socket (M) for DC-DC converter.
- Connector:** 1 piece of 5-pin connector (N) for external use
- LCD display:** 2x16 signs with backlight. Sight angle adjust (C).
- Keyboard:** 20 buttons covered with polycarbonate plastic overlay.
- Other:** RISC-based microprocessor
EEPROM, 64KB.
Reset button (D).
Termination DIL-Switches (F).
- Power supply:** 24 VDC through communication cable.
- Max current:** 100 mA



Casing

- Power supply:** 24VDC, 100mA. If it power some additional device that current must be added.
- Casing:** 23401 + 23442, Strong steel box, black powder painted.
23441, Stainless steel brushed surface. 6 x M4 stainless screws with lock nuts included.
- Outer measures:** 23401 + 23442, 113 x 188 x 62 mm.
23441, 147 x 197.5 x 32 mm
- Mounting:** 23401 + 23442, 4 x ø5 mm CC = 68 x 140 mm
23441, 6 x ø4.5 mm CC = 137 x 92.5 and 95 mm
- Weight:** 23401 = 1.2 kg
23441 = 0.4 kg
23442 = 1.2 kg
- Optional:** **Serial port kit part number 23 415.** (included in 23442)
The kit contains:
One 10-pole female to a standard DSUB 9-pin male connector.
One piece of MAX232CPE RS-232 serial port driver.
Two sets of chassis connector screw with washers and nut.



Environment

- Use:** Indoors.
Temperature 0 - +55°C
Humidity 90-95%, not condensing
- Transport:** Temperature -40 - +70°C
Humidity 90-95%, not condensing
- Storage:** Temperature -40 - +70°C
Humidity 90-95%, not condensing.