



CAREL UXP Microchiller Expansion Module Instructions

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CAREL UXP Microchiller Expansion Module



Key

	Key:
1	Power supply connector [G (+), G0 (-)]
2	Digital inputs
3	RS485 serial port (GND, T+, T-)
4	Red LED and green LED to indicate the operating status
5	Modbus address and baud rate setting
6	IDC1 is the common for inputs ID1 ... ID8. IDC2 is the common for inputs ID9 ... ID16

General characteristics

UXP is an expansion module developed by Carel to handle an higher number of digital input. Module is driven by the Modbus (RTU) protocol using a serial communication (RS485). Input can be handled by the expansion are:

- Fast digital inputs with voltage-free contact to correctly handle high speed inputs. E.g. to monitor fan speed;
- Digital inputs with voltage-free contacts.

Power supply

When installing an expansion card, a safety isolating transformer with a minimum rating of 5W or 24Vdc. source must be used. It is recommended to separate the UXP device from the power supply to other electrical devices (contactors and other electromechanical components) in the electrical panel. Make sure that the G and G0 references on all the cards mounted in the panel have the same polarity. (G0 reference must be used on every card).

Technical specifications

Mechanical specifications

Dimensions

UXP can be mounted on 4 DIN modules, 115x70x60 mm;

Plastic enclosure

- DIN rail mounting in accordance with DIN 43880 and CEI EN 50022;
- material: technopolymer;
- self-extinguishing: V0 (in compliance with UL94) and 960 °C (in compliance with IEC 695);
- ball pressure test: 125 °C;
- comparative tracking index: ≥ 250 V;
- colour: RAL7035 grey;
- cooling vent holes.

Electrical specifications

Power	24 Vac/Vdc +10%/-15% 50/60 Hz, UXP***** Max power input: 6 W SELV (Class 2 – UL)
Terminal block	with plug-in screw/fixed screw connectors – max. voltage: 250 Vac cable cross-section: min. 0.5 mm ² – max. 2.5 mm ²
CPU	single chip 32 bits; 48 MHz
Operation delay time	0.5 s
Communication frame	baud rate 9600 to 57600 bit/s; stop bits 2; parity none

Digital inputs

- number and type: 8 not opto-isolated D.I. max freq.: 500 Hz UXP*****2****
- number and type: 16 not opto-isolated D.I. max freq.: 500 Hz UXP*****3****

Note: for general purpose DIs, there is an internal power supply for the DI part, these only support external voltage-free contacts.

Warning:

1. If the length exceeds 10 m, use a shielded cable with the shield earthed. In any case, the maximum length permitted is 30 m. Length > 10 m a shielded cable with the shield earthed is required;
2. Please keep the probe and digital input cables as far away as possible from power cables, to avoid possible electromagnetic noise.

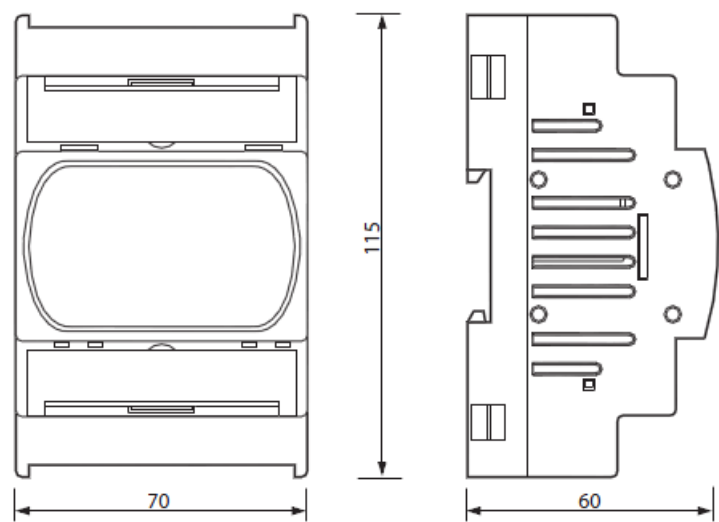
Using the dipswitches to set the address and baud rate

It is recommended to power down the board before changing the dipswitch settings

Important: the baud must be rebooted for the new baud rate and address settings to take effect.

The board is equipped with 4 dipswitches that are used to the configuration with the 4 dipswitches all set to 0, the board is set with address 1 and 19200 8N2 as the communication parameters. This configuration has been developed for use in the system configuration phase or to assist in identifying communication errors. The serial address is set using dipswitches 1 and 2. To allow for a larger set of values, there is also an offset variable, default value 0. For information on this variable (address and limits), see the list of UXP Modbus variables.

Expansion dimensions



Meaning of signal LEDs

red LED	green LED	meaning
—	ON	Always on when power is connected
—	Blinking	Probe error alarm
OFF	—	Normal communication
Blinking	—	No communication for more than 30 s

When dipswitches 1 and 2 are set to 1, 2 or 3, the UXP address is the sum of the value set by the dip-switches and the value of the offset variable.

Serial address
1 + offset (default)
2 + offset
3 + offset

Dipswitches 3 and 4 set the baud rate, as shown in the figure below:

Baud rate
19200 (default)
9600
38400
57600

Configuration examples

Offset	Address	Baudrate
any value	1	19200
0	1	19200
0	2	57600
40	$2 + 40 = 42$	57600
0	3	19200
20	$3 + 20 = 23$	19200
20	$3 + 20 = 23$	9600

Setting the communication parameters

To set the communication parameters, the serial transmission configuration variable needs to be set via serial communication (see Tab. 1).

Example: if the variable is set to 5, then the configuration is 8, Even, 1. For information on this variable (address and limits), see the list of UXP Modbus variables.

IMPORTANT: if the communication parameter settings are changed, the board must be rebooted to make them active.

Value	Configuration
0 (default)	8, None, 2
1	8, None, 1
2	8, Odd, 2

Value	Configuration
3	8, Odd, 1
4	8, Even, 2
5	8, Even, 1

- UXPCON0020 (for 8 inputs UXP*****2**** version);


- UXPCON0030 (per 16 inputs UXP*****3**** version). Following codes are available, sold separately, for the connector kits:

Other specifications

Storage conditions	-40T70 °C, 90% r.H. non-condensing
Operating conditions	-40T60 °C, 90% r.H. non-condensing
Index of protection	IP00
Pollution degree	3
Overvoltage category	III (based on external safety transformer or SMP S)
Classification according to protection against electric shock	Class III
PTI of insulating materials	100 V
Period of electric stress across insulating parts	long
Type of actions	1
Category of resistance to heat and fire	D (UL94 – V0) category
EMC level	Industrial
Rated impulse voltage	800 V
Software class and structure	Class A

Warning: for applications subject to strong vibrations (1.5 mm pk-pk 10 to 55 Hz), it is recommended to use cable ties to secure the cables connected to the UXP around 3 cm from the connectors. CAREL reserves the right to modify the features of its products without prior notice.

Documents / Resources

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References

-  [CAREL](#)