

DIN rail-mounted zone and output expander

INT-IORS

DIN rail-mounted output expander

INT-ORS

Firmware version 6.02

EN



int-iors_en 03/26

IMPORTANT

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Disconnect power before making any electrical connections.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

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Please visit us at:
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The declaration of conformity may be consulted at www.satel.pl/ce

Signs in this manual



Caution – information on the safety of users, devices, etc.



Note – suggestion or additional information.

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The INT-IORS expander is used to expand the system by 8 programmable hardwired zones and by 8 programmable hardwired outputs. The INT-ORS expander is used to expand the system by 8 programmable hardwired outputs. The devices work with the alarm control panels and access control panels by SATEL.

The expanders are designed for mounting on a 35 mm DIN-rail which for easier installation and integration with other automation systems.

This manual applies to the INT-IORS expander with electronics version 2.5 and the INT-ORS expander with electronics version 2.5.

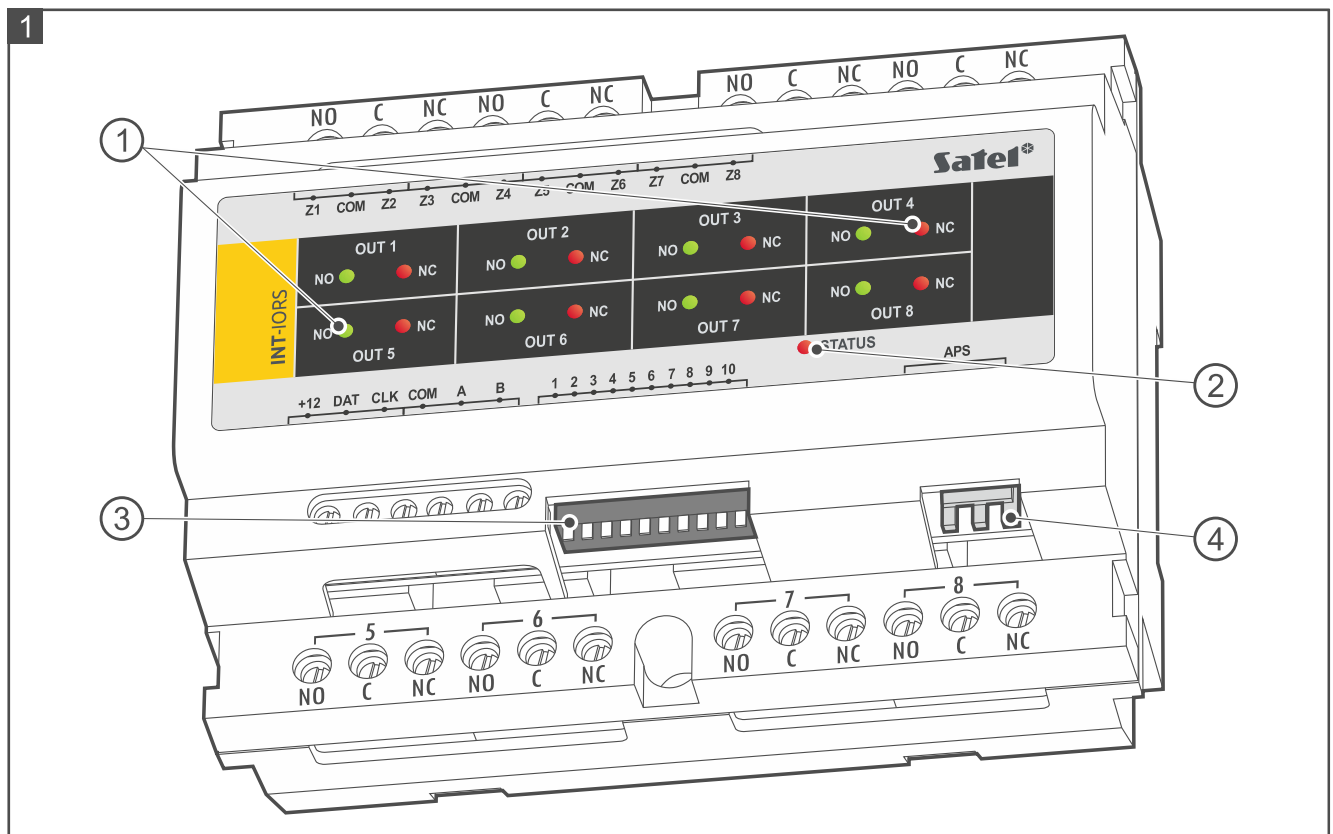


In the BE WAVE Hybrid / BE WAVE Wire system, expanders with firmware version 6.02 (or newer) are supported.

1. Features

- 8 programmable hardwired zones [INT-IORS]:
 - support for NO and NC detectors, as well as roller shutter and shock detectors,
 - support for EOL, 2EOL and 3EOL configuration (configuration availability depends on the system in which the expander is installed),
 - programmable value of end-of-line resistors.
- 8 programmable hardwired outputs:
 - 8 relay outputs,
 - capability to control 230 VAC electrical devices.
- C/D communication bus.
- RS communication bus.
- Firmware update via the RS bus.
- Powered by 12 VDC.
- Connector for SATEL power supply (e.g. APS-412).
- Mountable on 35 mm DIN rail.

2. Description



- ① LED indicators showing the status of relays:
red LED is ON – relay is OFF,
green LED is ON – relay is ON.
- ② STATUS LED indicator showing communication with the control panel:
ON – no communication with the control panel,
flashing – communication with the control panel OK.
- ③ DIP-switches (see p. 4).
- ④ APS connector to connect a SATEL power supply (e.g. APS-412).



If a power supply is connected to the APS connector, the expander will be identified as an expander with power supply. The expander will send information about the following power supply troubles:

- *loss of 230 VAC power,*
- *battery trouble (no battery, low battery, etc.),*
- *power supply overload.*

Terminals

- NO** - relay output normally open contact.
C - relay output common contact.
NC - relay output normally closed contact.
Z1...Z8 - zones [INT-IORS].
COM - common ground.

+12V - power input / +12 VDC power output when the expander is powered by a power supply connected to the APS connector.



Never connect power to the terminals if a SATEL power supply is connected to the APS connector.

DAT - data (C/D communication bus).

CLK - clock (C/D communication bus).

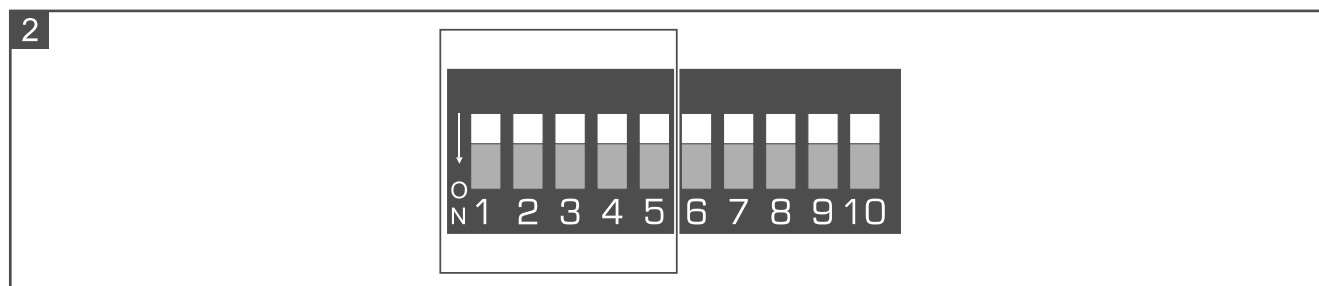
A, B - RS communication bus.

2.1 DIP-switches

Using the DIP-switches, you can:

- set the expander address,
- select the device type,
- set the rules for programming end-of-line resistors [INT-IORS].

2.1.1 Address setting

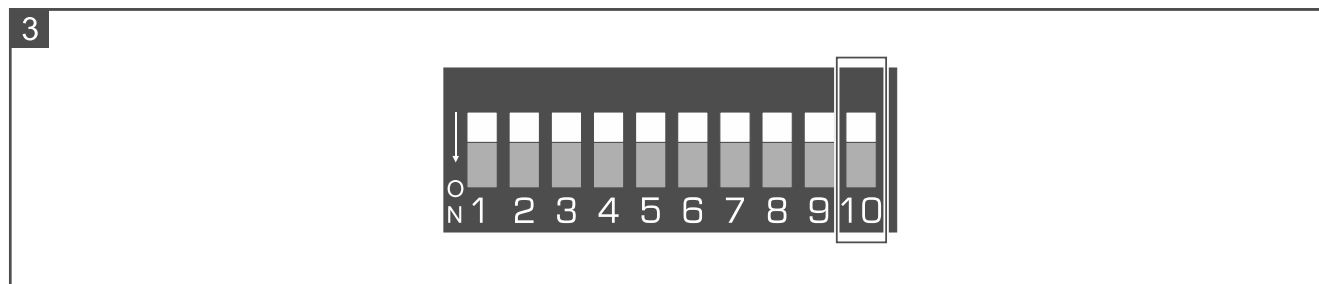


In some systems, an individual address must be set in the expander (different from that in the other devices connected to the communication bus). Use DIP-switches from 1 to 5 to set the address. The switches have numbers assigned to them. In the OFF position, the number is 0. The numbers assigned to the switches in ON position are presented in the table 1. The sum of these numbers is the address set. For more information on the address setting, refer to the manual of the device to which the expander is to be connected.

Switch (ON position)	1	2	3	4	5
Number	1	2	4	8	16

Table 1.

2.1.2 Selecting the device type



Use switch 10 to define how the expander will be identified in the system (tables 2 and 3). Switch 6 must be set in OFF position. If a SATEL power supply is connected to the APS connector, the device will be identified as an expander with power supply.



Set the switch 10 in ON position if the expander is connected to one of the control panels:

- PERFECTA,
- INTEGRA (firmware version from 1.00 to 1.04),
- CA-64.

If you set the switch in OFF position, the control panel will not identify the expander.

If no SATEL power supply is connected to the APS connector in the INT-IORS expander and switch 10 is set in ON position, the device will be identified as an expander with power supply. In such case, power supply-related troubles will not be reported.

If a SATEL power supply is connected to the APS connector, switch 10 can be set in OFF position only for the INTEGRA / INTEGRA Plus control panels with firmware version 1.12 or newer.

In the ACCO / BE WAVE Hybrid / BE WAVE Wire systems, the position of switch 10 is irrelevant. The expander is always identified as INT-IORS / INT-ORS or INT-IORSPS / INT-ORSPS.

Position of switch 10	INT-IORS expander identification	
	expander without power supply	expander with power supply
ON	INT-PPPS / CA-64 PP	
OFF	INT-IORS	INT-IORSPS

Table 2.

Position of switch 10	INT-ORS expander identification	
	expander without power supply	expander with power supply
ON	INT-O / CA-64 O	INT-OPS / CA-64 OPS
OFF	INT-ORS	INT-ORSPS

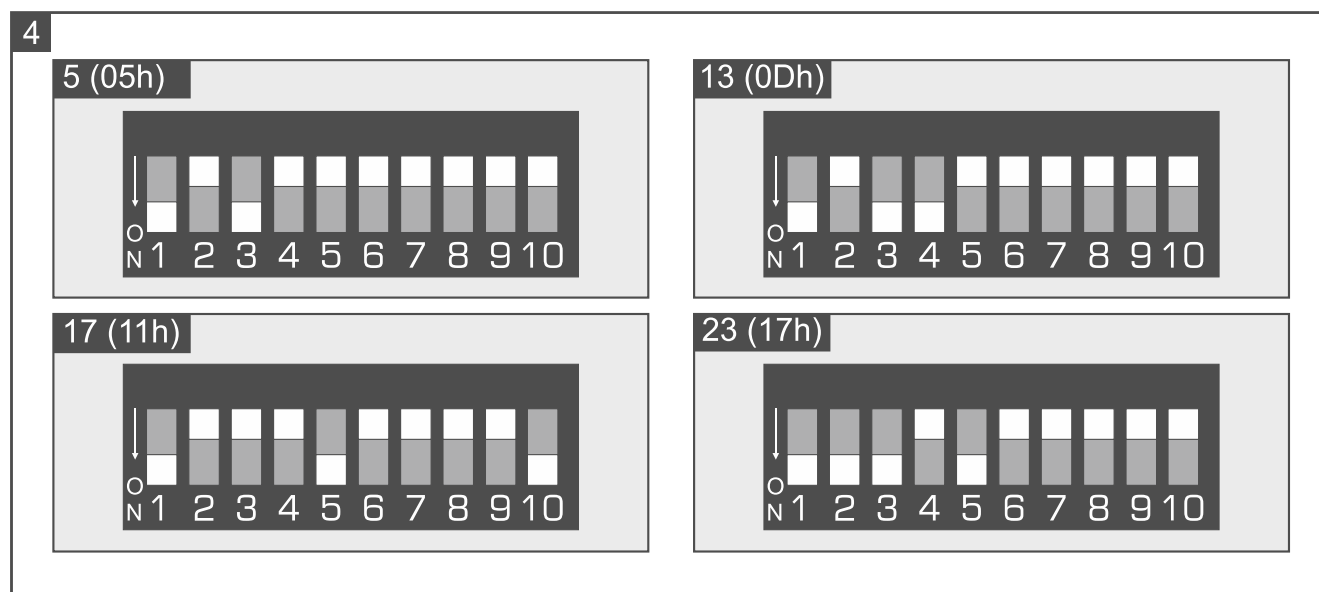
Table 3.

The expander zones functionality depends on the selected device type (table 4).

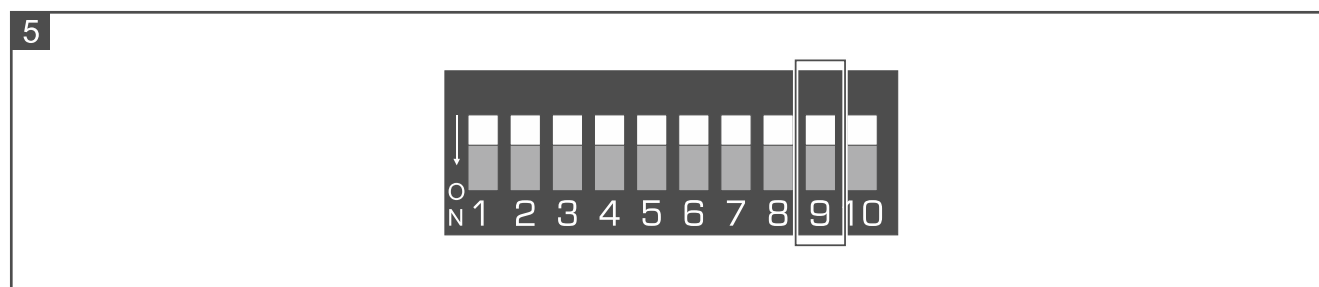
Function	INT-IORS INT-IORSPS INT-PPPS	CA-64 PP
support for roller shutter and shock detectors	✓	-
support for 3EOL configuration	✓	-
programmable value of end-of-line resistors	✓	-

Table 4.

Figure 4 shows examples of address and switch 10 settings.



2.1.3 Setting the rules for programming end-of-line resistors [INT-IORS]



Use switch 9 to define how the programmed values of end-of-line resistors are to be interpreted (table 5). This function is useful if you want to connect to the zone end-of-line resistors larger than it is allowed by the resistor programming range.

Position of switch 9	Values of end-of-line resistors
ON	programmed value should be multiplied by 10 (e.g. 2200 Ω = 22000 Ω)
OFF	programmed value is the actual value

Table 5.

3. Installation



Disconnect power before making any electrical connections.

To power the expander, use a 12 VDC power supply (e.g. the SATEL APS-412 power supply).

Never connect power supply to APS connector and terminals at the same time.

3.1 Tips for installation

- The expander should be installed indoors, in spaces with normal air humidity.
- Do not install the expander outdoors.
- To connect devices to the expander terminals, use flexible wires with a cross-section of 0.5-0.75 mm².
- If power is to be connected to screw terminals, the expander may be powered e.g. from the control panel (distance to the control panel must be up to 300 m) or from an additional power supply.

3.1.1 C/D communication bus

- Use an unshielded non-twisted cable. If you use the twisted-pair type of cable, remember that CLK (clock) and DAT (data) signals must not be sent through one twisted-pair cable.
- The wires must be run in one cable.
- The length of the cable must not exceed 600 m (VERSA / PERFECTA) or 1000 m (INTEGRA / ACCO-NT2 / CA-64).



For more information on the communication bus, please refer to the manual of the control panel to which the expander is to be connected.

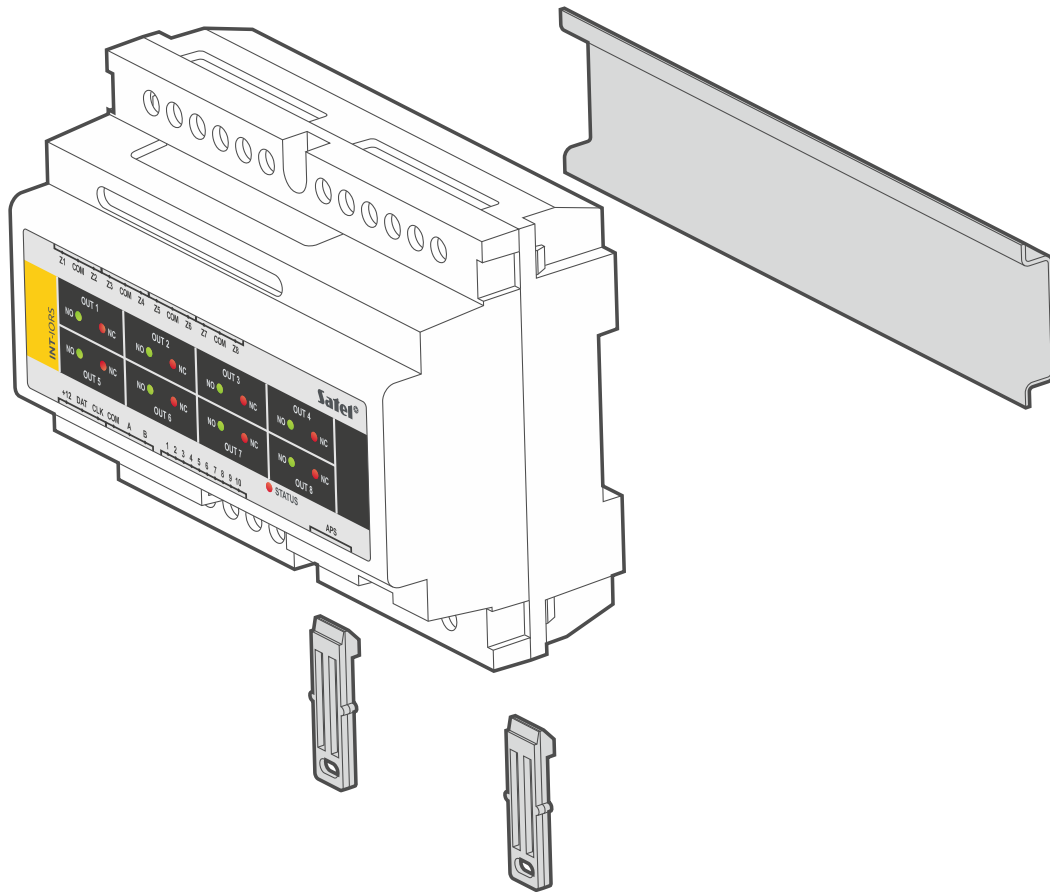
3.1.2 RS communication bus

- Use a UTP cable (unshielded twisted pair).
- The length of the bus must not exceed 1200 meters.
- Place 120 $\Omega \pm 20\%$ resistors at both ends of the bus.
- Connect the COM terminals of all devices on the bus with an additional wire.

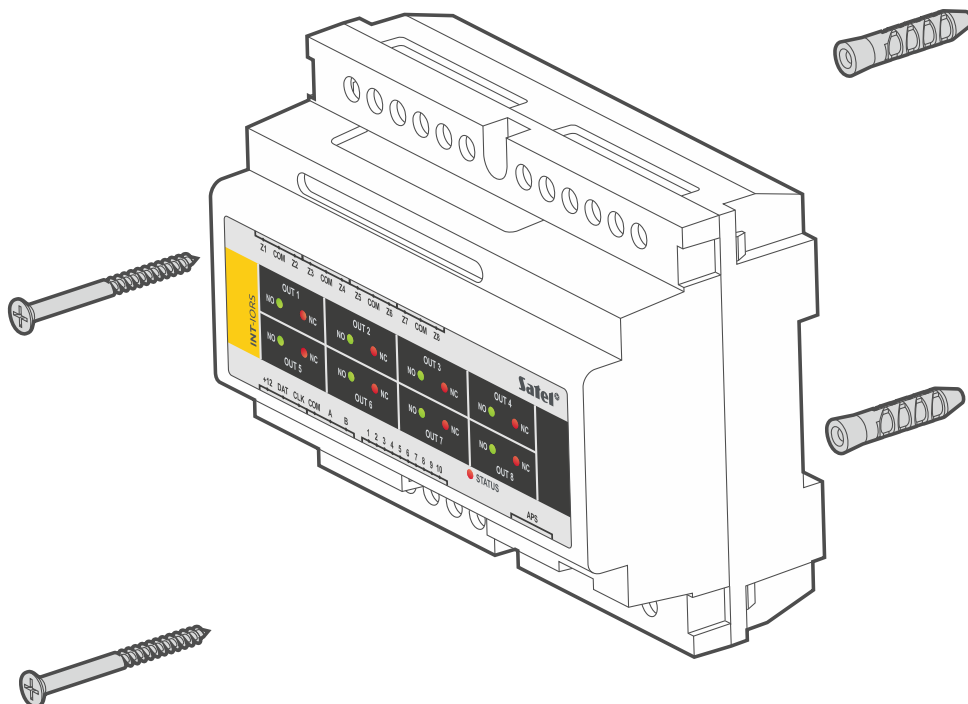
3.2 Mounting

1. Mount the expander on DIN rail (Fig. 6) or secure it to the wall with screws (Fig. 7). If the expander is to be screwed to the wall, select appropriate wall plugs (different for concrete or brick wall, different for plaster wall, etc.).
2. If required, set the DIP-switches accordingly (see "DIP-switches" p. 4).
3. Screw the communication bus wires to the expander terminals.
4. Connect detectors to the expander zones (for description on how to connect detectors, refer to the control panel manual) [INT-IORS].
5. Depending on the selected method of expander powering, connect the power supply to the APS connector or screw the power wires to the +12V and COM terminals.
6. Power on the expander.
7. Depending on the requirements of the system in which the expander is installed, identify / add the expander. For more information, refer to the manual of the device to which the expander is connected.

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8. Configure the output settings and check if the outputs are triggered correctly (check the LED indicators showing the status of individual outputs).
9. Power down the expander.
10. Connect devices to the expander outputs.
11. Power on the expander.

4. Updating the expander firmware

1. Using the RS bus, connect the expander to the USB-RS485 converter (see the USB-RS485 converter manual).
2. Connect the USB-RS485 converter to the computer USB port.
3. Download the expander firmware update program from the support.satel.pl website.
4. Start the downloaded program.
5. Click .
6. In the window that will be displayed, indicate the COM port to which the USB-RS485 converter is connected, then click **OK**.
7. When a command is displayed prompting you to power the expander off and on, restart the device.
8. The program will read information on the expander firmware version.
9. When a prompt is displayed asking if you want to continue the firmware update, click **Yes**.
10. The expander firmware will be updated.

5. Specifications

Supply voltage	12 VDC $\pm$ 15%
Standby current consumption	
INT-IORS.....	35 mA
INT-ORS.....	35 mA
Maximum current consumption	
INT-IORS.....	350 mA
INT-ORS.....	310 mA
Active relay current consumption	16 mA
Relay outputs (resistive load).....	16 A / 230 VAC
+12V output	2.5 A / 12 VDC
Power loss at maximum load	24 W
Security grade according to EN 50131	
without power supply	Grade 3
with APS-612 power supply.....	Grade 3
with APS-412 power supply.....	Grade 2
Environmental class according to EN50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93 $\pm$ 3%
Enclosure dimensions.....	122 x 93 x 58 mm
Weight	
INT-IORS.....	300 g
INT-ORS.....	285 g