

Controller for regulate of temperature, fan, light and sun protection
Room control unit with colour TFT display and capacitive keys (touch keys),
with Modbus connection or W-Modbus (Wireless)

S+S REGELTECHNIK

The room control units of the **RYMASKON® 1000 / 2000 / 3000** series are designed for control (up to 5 climate zones) in residential, hotel and office rooms and individually regulate the heating, cooling and fan levels of the internal rooms. The controller variants can be operated as stand-alone units thanks to the integrated control functions PI, PWM or 2-/3-point control. The product family is characterised by its elegant design, intuitive operation and the many possible combinations of the individual components.

The room control units **RYMASKON® 1000 C** (Controller) are used to control and regulate heating convectors and fan coils. Depending on the type variant, the units are available with analogue outputs (0-10 V) and with Digital/relay outputs for controlling heating valves, cooling valves, 6-way valves, staged fans or EC fans. Control takes place via PI, PWM or 2-point/3-point control. The change-over function can be used to operate 2-pipe and 4-pipe systems. The Modbus or W-Modbus communication interface enables the climate parameters on the controller to be changed and monitored via the BMS at any time. In addition, the sun protection (Venetian blinds, shutters) and light (with dimming function) functions can be controlled via the bus. Visual indication takes place on a 2" TFT **display**, where as the unit is controlled via capacitive keys (**touch keys**).

In addition to the integrated temperature and humidity sensor, **sensors** for CO₂ and VOC are available as an option. An input for a passive temperature sensor (NTC10K) and an input for a potential-free contact are additionally available. This allows a window contact or a condensation control switch to be connected, for example. This provides all options for air-conditioning of the rooms according to individual requirements.

All unit types are available in the contemporary **housing** Iduna 3 (112 x 89.5 x 24 mm) in white or black colour. Wall-mounting is performed on standard in-wall flush boxes.

TECHNICAL DATA

Unit type:	Room controller for heating convectors or fan coils
Functions:	Temperature, fan, sun protection and light (see type table)
System of units:	SI (default) or imperial (can be changed in the Modbus register)
Data points:	Temperature [°C] [°F], relative humidity [%RH], air quality (VOC) [ppb], carbon dioxide (CO ₂) [ppm], setpoint (temperature, fan, presence)
Power consumption:	typically < 3 W at 24 V DC; < 4.5 VA at 24 V AC; < 6.5 VA at 230 V AC
Voltage supply:	24 V AC/DC (± 10 %) or 230 V AC (100-240 V AC)
Communication:	Modbus (RTU cable), Slave, address range 1...247, max. 32 units, RS 485 interface, galvanically isolated , 9600 / 19200 / 38400 / 57500 Baud, 8N1, even / odd parity, 1 / 2 stop bits or W-Modbus (Wireless Modbus, AES-128 encrypted), Frequency 2.4 GHz ISM, Transmission power 100 mW , Range max. 500 m (open field) / approx. 50 - 70 m (inside buildings), Slave, address range 1...247, max. 100 units on one gateway, BMS connection is radio-based via W-Modbus gateway
Display:	TFT display , 2" (41 x 30 mm), 320 x 240 x 3 pixels (RGB), LED backlighting, viewing angle ± 85°
Operating elements:	capacitive keys (up to 10 keys, depending on type) for setting the target temperature, fan stages, presence message, sensor values, and for operating sun protection and light
Inputs:	1 Input NTC10K (can be configured as a digital input DI1 , potential-free) 1 Digital input DI2 for potential-free switches (24 V devices) or for potential-loaded switch (230 V devices)
Outputs:	Analogue outputs AO (0-10 V DC, max. 5 mA) as PI controllers Relay outputs RO (230 V AC, max. 500 mA, cos φ = 1.0 / resistive load) or (230 V AC, max. 3 A, cos φ = 1.0 / resistive load) as 2-point/3-point controllers Digital outputs DO (I _n 400 mA, short circuit max. 1.2 A) as 2-point/3-point controllers, PWM for heating/cooling, 6-way-valves, fan, number depends on controller type (see connection diagrams)
Electrical connection:	0.2 - 1.5 mm ² , using push-in terminals
Housing:	plastic, flame retardant (UL 94 V-0), PC/ABS material, colour white (similar to RAL 9016) or black (similar to RAL 9004)
Housing dimensions:	112 x 89.5 x 24 mm (W x H x D) (Iduna 3) in-wall: + 23 mm (D), sensor protection: + 22 mm (H)
Mounting:	Wall-mounting on in-wall flush box, Ø 55 mm
Ambient temperature:	0...+50°C (operation); -30...+70°C (storage)
Permitted humidity:	0...90 % RH (non-precipitating air)
Protection type:	IP 30 (according to EN 60 529)
Overvoltage category:	OVC1 (at 24 V); OVC2 (at 230 V)
Contamination degree:	PD2
Standards:	CE conformity according to Low-Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU (Modbus) or Radio Equipment Directive 2014/53/EU (W-Modbus)

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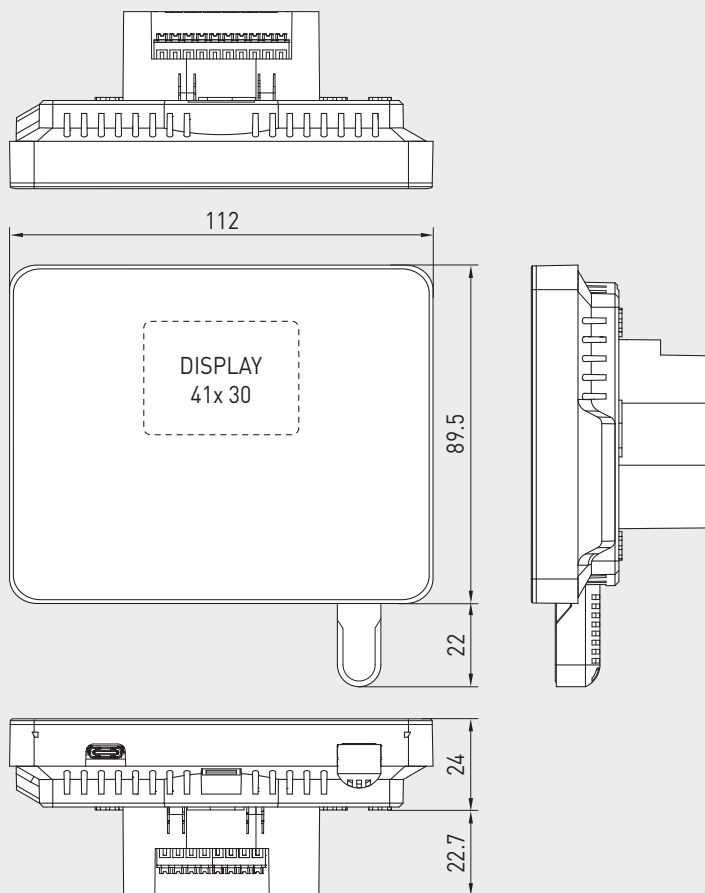
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Dimensional drawing
In-wall version Iduna 3
[mm]

RYMASKON® 13xx
RYMASKON® 14xx

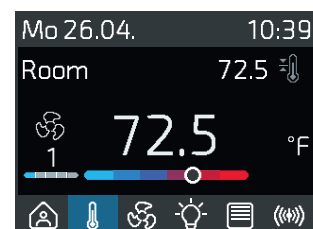
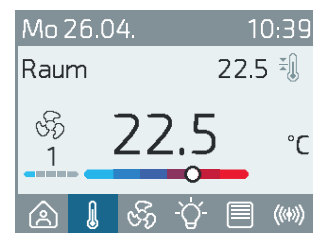


Device versions with
optional extra keys
for controlling light (L)
and/or sun protection (B)

**TECHNICAL DATA**

(continuation)

TEMPERATURE	(basic equipment)
Sensor:	digital temperature sensor, low hysteresis, high long-term stability
Measuring range:	0...+50 °C / +32...+122 °F
Accuracy:	typically ± 0.3 K / ± 0.5 °F at +25 °C / +77 °F
HUMIDITY	(basic equipment)
Sensor:	digital humidity sensor, low hysteresis, high long-term stability
Measuring range:	0...100 %RH
Accuracy:	typically ± 2.0 % (20...80 %RH) at +25 °C / +77 °F, otherwise ± 3.0 %
CARBON DIOXIDE (CO2)	(optional)
Sensor:	digital photoacoustic NDIR-CO2 sensor (non-dispersive infra-red technology), with automatic calibration and high long-term stability
Measuring range:	0...2000 ppm
Accuracy:	typically ± 50 ppm, ± 3 % of the measured value at +25 °C / +77 °F
AIR QUALITY (VOC)	(optional)
Sensor:	digital metal oxide (MOX) based VOC sensor
Measuring range:	0...100 % (corresponds to IAQ Index 1...500 or 0...2383 ppb ethanol equivalent – non-linear)
Accuracy:	$< \pm 15$ %
Service life:	> 10 years (if used as intended, depending on type and duration of VOC exposure)

Display symbols

Controller for regulate of temperature, fan, light and sun protection
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Type 132xC-MOD
24 V

3 AO [h, c, 6W]

- 1 free
- 2 free
- 3 free
- 4 free
- 5 **A03** 0-10V (6-way valve)
- 6 **A02** 0-10V (cooling)
- 7 **A01** 0-10V (heating)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 Modbus A
- 16 Modbus B
- 17 Modbus A
- 18 Modbus B

Type 143xC-MOD
24 V

2 AO [h, c, 6W] + 1 AO (f)

- 1 free
- 2 free
- 3 free
- 4 free
- 5 **A03** 0-10V (fan)
- 6 **A02** 0-10V (cooling, 6-way valve)
- 7 **A01** 0-10V (heating, 6-way valve)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 Modbus A
- 16 Modbus B
- 17 Modbus A
- 18 Modbus B

Type 136xC-MOD
Type 146xC-MOD
24 V

2 AO [h, c] / (f) + 2 DO [h, c]

- 1 **DO2** (NO contact, 400mA, cooling)
- 2 **DO1** (NO contact, 400mA, heating)
- 3 Root/COM (24V, max. 1A res. load)
- 4 free
- 5 free
- 6 **A02** 0-10V (cooling) / (fan)
- 7 **A01** 0-10V (heating) / (fan)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 Modbus A
- 16 Modbus B
- 17 Modbus A
- 18 Modbus B

Type 132xC-WMOD
24 V

3 AO [h, c, 6W]

- 1 free
- 2 free
- 3 free
- 4 free
- 5 **A03** 0-10V (6-way valve)
- 6 **A02** 0-10V (cooling)
- 7 **A01** 0-10V (heating)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 free
- 16 free
- 17 free
- 18 free

Type 143xC-WMOD
24 V

2 AO [h, c, 6W] + 1 AO (f)

- 1 free
- 2 free
- 3 free
- 4 free
- 5 **A03** 0-10V (fan)
- 6 **A02** 0-10V (cooling, 6-way valve)
- 7 **A01** 0-10V (heating, 6-way valve)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 free
- 16 free
- 17 free
- 18 free

Type 136xC-WMOD
Type 146xC-WMOD
24 V

2 AO [h, c] / (f) + 2 DO [h, c]

- 1 **DO2** (NO contact, 400mA, cooling)
- 2 **DO1** (NO contact, 400mA, heating)
- 3 Root/COM (24V, max. 1A res. load)
- 4 free
- 5 free
- 6 **A02** 0-10V (cooling) / (fan)
- 7 **A01** 0-10V (heating) / (fan)
- 8 GND (AO)
- 9 GND (DI2)
- 10 **DI2** (potential-free)
- 11 **UB+** 24V AC/DC
- 12 **UB-** GND AC/DC
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)
- 15 free
- 16 free
- 17 free
- 18 free

Type 131xC-WMOD
230 V

2 RO [h, c] + 1 AO (6W)

- 1 free
- 2 free
- 3 free
- 4 **R01** Heating relay (solid state, 0.5A)
- 5 **R02** Cooling relay (solid state, 0.5A)
- 6 **DI2** (230V AC) - Ref N
- 7 **N** (230V AC)
- 8 **L** (230V AC)
- 11 Output 0-10V (6-way valve)
- 12 GND (Output 0-10V)
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)

Type 145xC-WMOD
230 V

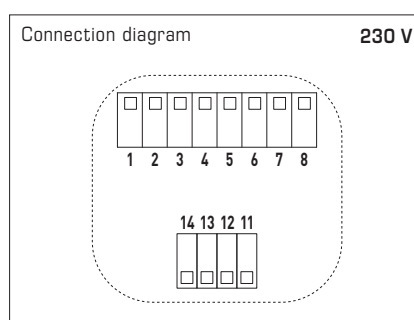
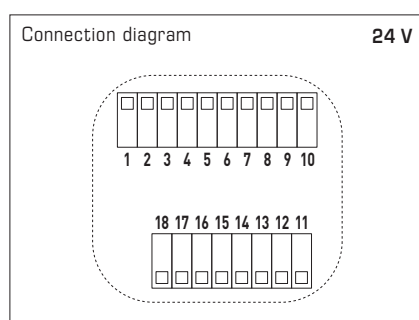
2 RO [h, c] + 1 AO (f)

- 1 free
- 2 free
- 3 free
- 4 **R01** Heating relay (solid state, 0.5A)
- 5 **R02** Cooling relay (solid state, 0.5A)
- 6 **DI2** (230V AC) - Ref N
- 7 **N** (230V AC)
- 8 **L** (230V AC)
- 11 Output 0-10V (Fan)
- 12 GND (Output 0-10V)
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)

Type 144xC-WMOD
230 V

2 RO [h, c] + 3 RO (f)

- 1 **R03** Fan level 1 relay (mechanical, 3A)
- 2 **R04** Fan level 2 relay (mechanical, 3A)
- 3 **R05** Fan level 3 relay (mechanical, 3A)
- 4 **R01** Cooling relay (solid state, 0.5A)
- 5 **R02** Heating relay (solid state, 0.5A)
- 6 **DI2** (230V AC) - Ref N
- 7 **N** (230V AC)
- 8 **L** (230V AC)
- 11 free
- 12 free
- 13 **NTC10K** (DI1, potential-free)
- 14 GND (NTC10K/DI1)



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BASIC MODELS**RYMASKON® 1000 C** Controller

Room control units
for temperature
adjustment



Type 1311 / 1321 / 1361



Type 1312 / 1322 / 1362



Room control units
for temperature and
fan adjustment



Type 1431 / 1441 / 1451 / 1461



Type 1432 / 1442 / 1452 / 1462

KEY FEATURES**RYMASKON® 1000 C** Controller

- 24 V AC/DC voltage supply or 230 V AC
- **Modbus** connection or wireless **W-Modbus**
- 2.0" TFT **display** (320x240x3 RGB pixels), with LED backlighting, high contrast, 85° viewing angle
- Capacitive keys (touch keys)
(optional extension, see number key pos. 14-15)
- **Housing** Iduna 3 (112x89.5x24 mm), white and black colours, for wall-mounting on in-wall flush boxes, quick and easy installation via push-in terminals
- Integrated temperature and humidity sensor (basic equipment)
(additional sensors optional: CO₂, VOC)
- **Control** of heating, cooling, 6-way valve, fan
- **Control** of temperature, fan
(sun protection and light with dimming function available as an option)
- Power-saving and environmentally friendly thanks to **features**
such as brightness adjustment, stand-by, wake-up, etc.
- **CuRA** (Customized Register Assignment)
Assignment of individual register addresses for each data point

Controller for regulate of temperature, fan, light and sun protection
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RYMASKON® 1000 C Controller (series)

R	Y	M	1	-	x	x	x	1	-	x	x	x	0	-	0	x	x
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Pos.	Option	Code
Pos. 1-4	Type name RYMASKON 1000 C	RYM1
Pos. 5-6	Controller type Setpoint adjustment I outputs	
	Temperature	
[1]	2 RO (h, c) + 1 AO (6W)	*1 31
[2]	3 AO (h, c, 6W)	32
[3]	2 AO (h, c) + 2 DO (h, c)	36
	Temperature + Fan	
[4]	2 AO (h, c, 6W) + 1 AO (f)	43
[5]	2 RO (h, c) + 3 RO (f)	*1 44
[6]	2 RO (h, c) + 1 AO (f)	*1 45
[7]	2 AO (h, c, f) + 2 DO (h, c)	46
Pos. 7	Housing colour	
	White	1
	Black	2
Pos. 8	Visual indication TFT display (2.0")	1
Pos. 9	Communication Modbus W-Modbus (Wireless)	*2 M W
Pos. 10	Sensors	
	T [°C/°F], RH [%]	2
	T [°C/°F], RH [%], CO2 [ppm]	6
	T [°C/°F], RH [%], VOC [%]	7
	T [°C/°F], RH [%], CO2 [ppm], VOC [%]	8
Pos. 11	Voltage supply 24 V AC/DC 230 V AC	1 2
Pos. 12	Mounting on in-wall flush box, Ø55 mm	0
Pos. 14-15	Touch key extension *3	
	Basic model (cf. Pos. 5) including room occupancy	00
	+ B (1 sun protection)	01
	+ BB (2 sun protection)	02
	+ L (1 light)	03
	+ LL (2 light)	04
	+ LB (1 light, 1 sun protection)	05

*1 230 V units

*2 Not with 230 V units

*3 Adjustment of sun protection (B) and light (L) is only possible via bus

Outputs

AO	Analogue (0-10 V DC)
RO	Relay (230 V AC)
DO	Digital (24 V DC)
(h, c)	Heating, Cooling
(f)	Fan
(6 W)	6-way valve

Sensors

T	Temperature [°C/°F]
RH	Relative humidity [%]
CO2	Carbon dioxide [ppm]
VOC	Air quality [%]

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RYMASKON® 13xx C		Controller (basic model) for heating convectors (HC) for temperature adjustment						
Type / WG02 Control outputs	Communi- cation	Measuring element	Control system	Colour / Housing	Display	Item no.	Price	
[1] 2 RO (heating, cooling, 230 V AC, max. 500 mA) + 1 AO (6-way valve, 0-10 V)								
RYMASKON® 131x C				Iduna 3				
RYM 1311C-RH-WMOD	W-Modbus	T RH	T – R	white		RYM1-3111-W220-000	318,77 €	
RYM 1312C-RH-WMOD	W-Modbus	T RH	T – R	black		RYM1-3121-W220-000	318,77 €	
[2] 3 AO (heating, cooling, 6-way valve, 0-10 V)								
RYMASKON® 132x C				Iduna 3				
RYM 1321C-RH-MOD	Modbus	T RH	T – R	white		RYM1-3211-M210-000	235,57 €	
RYM 1322C-RH-MOD	Modbus	T RH	T – R	black		RYM1-3221-M210-000	235,57 €	
RYM 1321C-RH-WMOD	W-Modbus	T RH	T – R	white		RYM1-3211-W210-000	318,77 €	
RYM 1322C-RH-WMOD	W-Modbus	T RH	T – R	black		RYM1-3221-W210-000	318,77 €	
[3] 2 AO (heating, cooling, 0-10 V) + 2 DO (heating, cooling, 24 V, max. 1 A resistive load)								
RYMASKON® 136x C				Iduna 3				
RYM 1361C-RH-MOD	Modbus	T RH	T – R	white		RYM1-3611-M210-000	235,57 €	
RYM 1362C-RH-MOD	Modbus	T RH	T – R	black		RYM1-3621-M210-000	235,57 €	
RYM 1361C-RH-WMOD	W-Modbus	T RH	T – R	white		RYM1-3611-W210-000	318,77 €	
RYM 1362C-RH-WMOD	W-Modbus	T RH	T – R	black		RYM1-3621-W210-000	318,77 €	

RYMASKON® 14xx C		Controller (basic models) for FAN COILS for temperature and fan adjustment						
Type / WG02 Control outputs	Communi- cation	Measuring element	Control system	Colour / Housing	Display	Item no.	Price	
[4] 3 AO (heating, cooling 6-way valve, EC fan, 0-10 V)								
RYMASKON® 143x C				Iduna 3				
RYM 1431C-RH-MOD	Modbus	T RH	T F R	white		RYM1-4311-M210-000	235,57 €	
RYM 1432C-RH-MOD	Modbus	T RH	T F R	black		RYM1-4321-M210-000	235,57 €	
RYM 1431C-RH-WMOD	W-Modbus	T RH	T F R	white		RYM1-4311-W210-000	318,77 €	
RYM 1432C-RH-WMOD	W-Modbus	T RH	T F R	black		RYM1-4321-W210-000	318,77 €	
[5] 5 RO (heating, cooling, 230 VAC, max. 500 mA 3-level fan, 230 VAC, max. 3 A)								
RYMASKON® 144x C				Iduna 3				
RYM 1441C-RH-WMOD	W-Modbus	T RH	T F R	white		RYM1-4411-W220-000	318,77 €	
RYM 1442C-RH-WMOD	W-Modbus	T RH	T F R	black		RYM1-4421-W220-000	318,77 €	
[6] 2 RO (heating, cooling, 230 VAC, max. 500 mA) + 1 AO (EC fan, 0-10 V)								
RYMASKON® 145x C				Iduna 3				
RYM 1451C-RH-WMOD	W-Modbus	T RH	T F R	white		RYM1-4511-W220-000	318,77 €	
RYM 1452C-RH-WMOD	W-Modbus	T RH	T F R	black		RYM1-4521-W220-000	318,77 €	
[7] 2 AO (EC fan, 0-10V) + 2 DO (heating, cooling, 24 V, max. 1 A resistive load)								
RYMASKON® 146x C				Iduna 3				
RYM 1461C-RH-MOD	Modbus	T RH	T F R	white		RYM1-4611-M210-000	235,57 €	
RYM 1462C-RH-MOD	Modbus	T RH	T F R	black		RYM1-4621-M210-000	235,57 €	
RYM 1461C-RH-WMOD	W-Modbus	T RH	T F R	white		RYM1-4611-W210-000	318,77 €	
RYM 1462C-RH-WMOD	W-Modbus	T RH	T F R	black		RYM1-4621-W210-000	318,77 €	
Measuring element / control system:	T = Temperature sensor RH = Humidity sensor		T = Temperature F = Fan R = Room occupancy					

OPTIONS			
Measuring elements:	CO2 = CO2 sensor		Extra charge 128,54 €
	VOC = VOC sensor		Extra charge 125,33 €
Control:	B / L Keys for sun protection and/or light (cf. Pos. 14-15)		on request
Communication:	without Modbus		on request
Optional:	More type versions on request! For configuration options, see number key (left)		