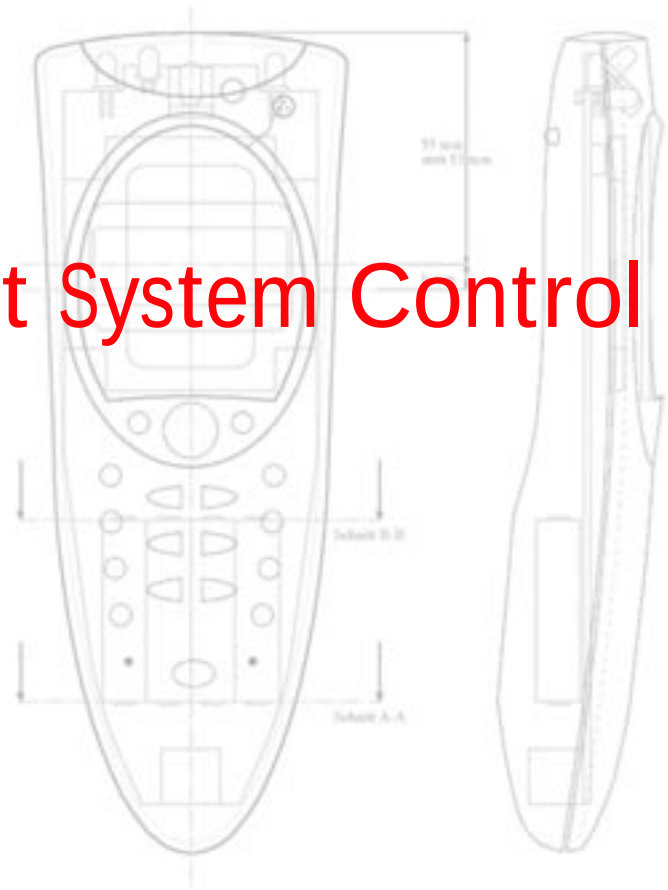
Residential air-conditioner controller

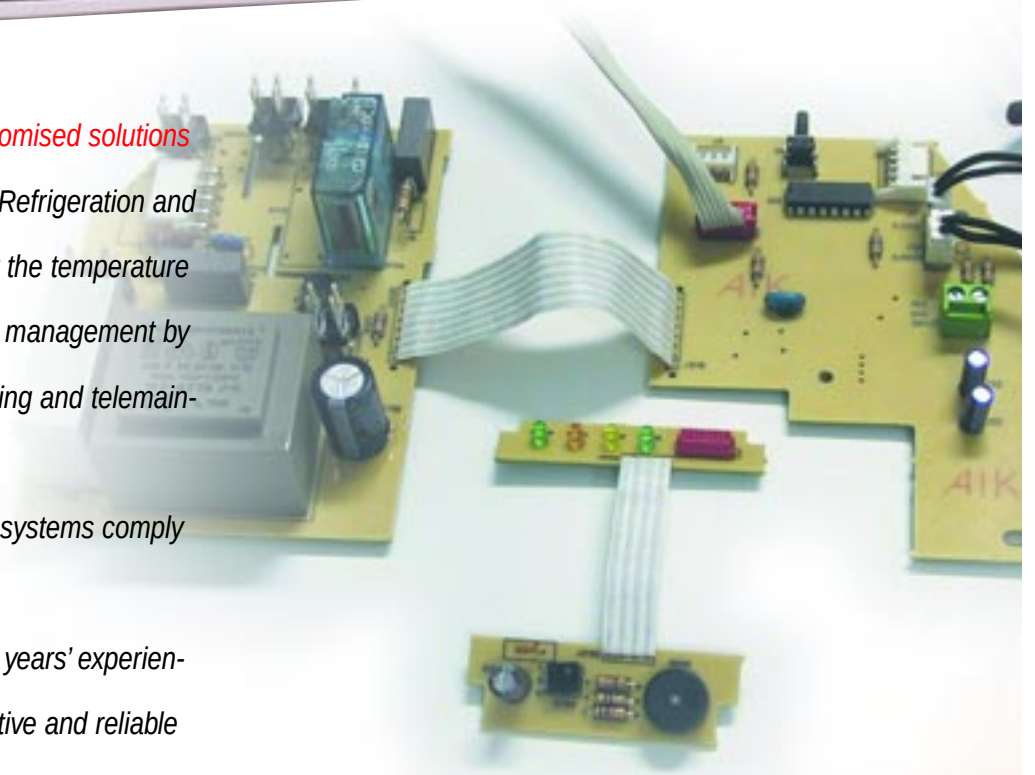


Split System Control

CAREL

Technology & Evolution

SplitSystemC



Carel offers standard and customised solutions for the International market of Refrigeration and Air-Conditioning regulation, for the temperature and humidity control and plant management by means of monitoring, supervising and telemaintenance systems.

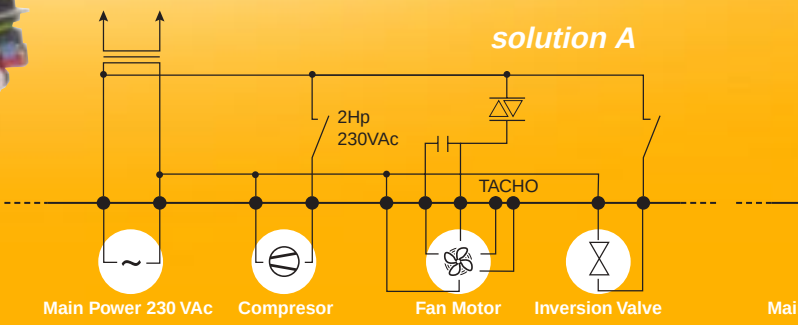
Carel's design and production systems comply with ISO9001 standards.

Thanks to our over twenty-five years' experience, now we offer a new innovative and reliable control system for split, competitive in price and able to respond to OEM's needs.

Operating modes

- *Fan, Cool, Dry, Heat, Auto, res, Heat + Res operating mode*
- *Sleep Function*
- *Programmable ON-OFF Timer*
- *4 LED operation status indicators*
- *Beep ON-OFF option*
- *Multifunction digital input*
- *Low, Medium, High, Auto Fan speed*
- *Full setting Air-sweep*
- *230/110Volt – 50/60Hz models*

Wiring diagrams



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Technical characteristics

Power supply 230V ~ +10% -15%. Type of connection: faston.

Device: electronic control for cold split system and heat pump system. The device is available only for manufactures.

PC connection: for testing and factory programming through twisted cable with 0.5 ~ 1.5mm2 cross section. Type of connection: faston. Maximum distance 2m.

Analog inputs: no.3 for NTC Carel probes (measurement range:-40T80, resolution:0.5°C/1°F, accuracy 1°C between -40°C and +80°C (except probe error). Type of connection: JST connector.

Response time: 70 s in still air for NTC probes.

Digital inputs: no.1 hall probe tachymetric input with 0-5V digital signal (internal Fan). Input impedance: 5KW. Type of connection: JST connection.
No.1 non optoinsulated clean-connection digital input for reed contact. Conductor maximum length 5m. Input impedance: 2.42KW. Connection type: screw terminal. Conductor section: 0.5 to 1.5 mm2.
no.1 test/emergency digital input, TACT-SWITCH button connection .

High Voltage Output :
No.1 compressor : 1HP up to 2HP
No.1 Internal Fan : 21W up to 30W (width tachymetric Hall signal output)
No.1 external Fan : 250W
No.1 reverse valve : 10W up to 15W

Low Voltage Output :
No.1 DC stepper motor for air sweep: 4 phase/12Vdc/ 280 ohm per phase

Analog outputs: no.1 phase cut off 1A 250V ~. Type of connection: faston. Conductor section: 0.5 to 1.5 mm2.

Index of protection: IP00.
Classification according to the electric shock protection: to be integrated in class I or II equipment.

PTI of the insulating materials: 250V ~

Overvoltage immunity: II category

Heat and fire resistance category: D category

No. of automatic operation (A) manoeuvre cycles: 100.000
Software class and structure: command device with A software

Full operation temperature: 0T50 Storage temperature: -20T70

Full operation humidity: 20 ~ 80% U.R. Storage humidity: 0÷80% U.R.

Ageing characteristic: 60,000h

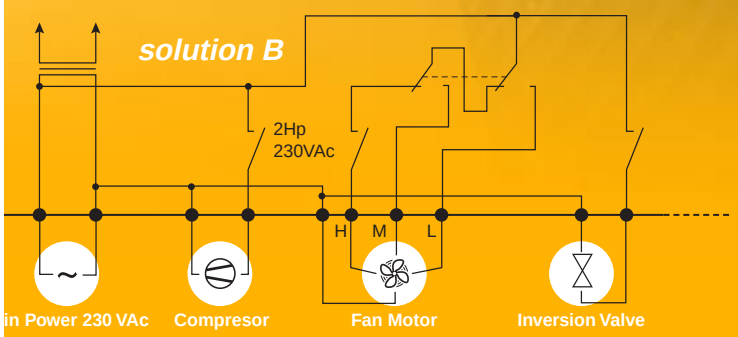
Electric stress period of the insulating parts: the instrument can undergo stress through the insulating parts for a long period

Amount of environmental pollution: normal

...a completely flexible solution !

Programmability

- *Fully programmable machine via SCI, KEY or IR (65 parmeters)*
- *Fully configurable machine via remote control for service (30 parameters)*



Remote Control: programmable parameters

Cod.	Description
H1	Machine type 0=only cool 1=heat pump
H2	Optional digital input (cable: max 5 m) 0=not active 1= door/window contact 2=condensation pump 3= electrostatic filter 4= resistance
H3	Internal card optional relay Action selection dependent on optional input 0=not dependent 1=on if IN=closed 2=off if IN= closed 3=electrostatic filter 4=resistance
Probes	
/2	Ambient probe calibration
Air sweep	
S1	Rotation speed (step period)
S2	Opening angle in Only cool operation
S3	Opening angle in heat pump operation
F	Internal fan
F2	min. Rpm in cool
F3	med. Rpm in cool
F4	max. Rpm in cool
F5	min. Rpm in heat
F6	med. Rpm in heat
F7	max. Rpm in heat
R	Regulation field
r1	Set cool min
r2	Set cool max
r3	Set dry min
r4	Set dry max
r5	Set heat min
r6	Set heat max
r7	Set res min
r8	Set res max
r9	Set heat+res min
r10	Set heat+res max
r11	Set auto min
r12	Set auto max
Emergency button	
E1	Temperature value for operation in emergency
D	Time/temperature defrosting
d1	Count start temperature
d2	Count start pressure
d3	Count time to enable the defrosting
d4	Count reset time for temp. Exceeding d4
d5	Temp. Threshold. For counter reset
d5	Temp. threshold. For counter reset
d6	Pressure threshold. For counter reset
d7	Defrosting time (10 min)
d8	Defrosting end temperature
d9	Defrosting end pressure
Alarms	
L11	Automatic reset for return to normal conditions of the minimum sensor (A in heat, B in cool) 0=not enabled n= enabled n times
L13	Automatic reset for return to normal conditions of the maximum sensor (B in heat, A in cool) 0=not enabled n= enabled n times

Split System: programmable parameters

Cod.	Description
H1	Machine type 0=only cool 1=heat pump
H2	Optional digital input 0=not active 1=door/window contact 2=condensation pump 3=electrostatic filter 4=resistance
H3	Internal card optional relay Action selection dependent on optional Input 0=not dependent 1=on if IN=closed 2=off if IN=closed 3=electrostatic filter 4=resistance
c	Compressor
c1	Minimum time on
c2	Minimum time off
c3	Time between 2 starts
c4	Compressor start delay from the fan start. U.E. in PC after defrosting
Air sweep	
S1	Speed of rotation (step period)
S2	Opening angle in only cool operation
S3	Opening angle in heat pump operation
F	Internal fan
F1	Internal fan min. Rpm
F2	Min Rpm in cool
F3	Med. Rpm in cool
F4	Max Rpm in cool
F5	Min Rpm in heat
F6	Med. Rpm in heat
F7	Max Rpm in heat
F8	Temperature for fan stop in heat
F9	Temp. differential for fan restart in heat
F10	Fan starting time
r	Regulation field
r1	Set cool min
r2	Set cool max
r3	Set dry min
r4	Set dry max
r5	Set heat min
r6	Set heat max
r7	Set res min
r8	Set res max
r9	Set heat+res min
r10	Set heat+res max
r11	Set auto min
r12	Set auto max
r13	Set cool selectable with +/- at discretion
r14	Set dry selectable with +/- at discretion
r15	Set heat selectable with +/- at discretion
r16	Set res selectable with +/- at discretion
r17	Set heat+res selectable with +/- at discretion
r18	Set auto selectable with +/- at discretion
Emergency button	
E1	Temperature value for operation in emergency
d	Time/temperature defrosting
d1	Count start temperature
d2	Count time to enable the defrosting
d3	Count reset time for temp. exceeding d5,d6
d4	Temp. threshold for counter reset
d5	Pressure threshold for counter reset
d6	Defrosting time (10 min)
d7	Defrosting end temperature
Alarms	
L1	Ntc A out of range
L2	Ntc B out of range
L3	Ntc C out of range
L4	Automatic reset for return to normal conditions of the minimum sensor (A in heat, B in cool) 0=not enabled n=enabled n times
L5	Automatic reset for return to normal conditions of the maximum sensor (B in heat, A in cool) 0=not enabled n=enabled n times

Cod. +302240320 rel. 2.0 22.02.01

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