9. TECHNICAL SPECIFICATIONS AND PRODUCT CODES

9.1 Technical specifications

	Model	Voltage	Power
Power supply	IR33x(V,W,Z,D,A,B,E)7Hx(B,R)20	115/230Vac(-15% to +10%), 50/60Hz	6VA, 50mA~ max
	DN33x(V,W,Z,A,B,E)7Hx(B,R)20		
	IR33x(V,W,Z,D,A,B,E)7LR20, DN33x(V,W,Z,A,B,E)7LR20	12/24Vac(-10% to +10%), 50/60Hz	4VA, 300mA~ max
		12/30Vdc	300 mA ⎓ max
		Only use SELV power supply	

Insulation guaranteed by the power supply	IR33x(V,W,Z,D,A,B,E)7Hx(B,R)20 DN33x(V,W,Z,A,B,E)7Hx(B,R)20	insulation from very low voltage parts	reinforced
			6 mm in air, 8 mm on surface
			3750V insulation
		insulation from relay outputs	basic
			3 mm in air, 4 mm on surface
			1250V insulation
	IR33x(V,W,Z,D,A,B,E)7LR20 DN33x(V,W,Z,A,B,E)7LR20	insulation from very low voltage parts	to be guaranteed externally by safety transformer
		insulation from relay outputs	reinforced
			6 mm in air, 8 mm on surface
			3750V insulation

Inputs	B1 (PROBE1)	NTC or NTC extended range or PTC or PT1000
	B2 (PROBE2)	
	DI1	voltage-free contact, contact resistance < 10Ω, closing current 6mA
	DI2	
	Maximum distance of probes and digital inputs less than 10m	
	Note: in the installation, keep the power and load connections separate from the probe, digital inputs, repeater display and supervisor cables.	

Type of probe	Std. CAREL NTC	10kΩ at 25°C, range from –50T90°C	
		measurement error:	1°C in range from –50T50°C
			3°C in range from +50T90°C
	High temperature NTC	50kΩ at 25°C, range from –40T150°C	
		measurement error:	1.5°C in range from –20T115°C
			4°C in range outside of -20T115°C
	PTC	985Ω at 25°C, range from -50T150°C	
		measurement error	2°C in range from –50T50°C
			4°C in range from +50T150°C
Type of probe	PT1000	1097Ω at 25°C, range from -50T150°C	
		measurement error:	3°C in range from –50T0°C
			5°C in range from 0T150°C

Relay outputs		EN60730-1			UL 873	
	models	relays	250V~	oper. cycles	250V~	oper. cycles
	IR33x(V,W,Z,B,E)7LR20 DN33x(V,W,Z,B,E)7LR20 IR33x(V,W,Z,B,E)7Hx(R,B)20 DN33x(V,W,Z,B,E)7Hx(R,B)20	R1,R2	8 (4)A N.O.	100000	8A res 2FLA 12LRA C300	30000
		R3,R4	6 (4)A N.C.			

SSR outputs	models		
	IR33x(D,A)7LR20	D = 1 SSR output	Max. output voltage: 12 Vdc
	DN33x(D,A)7LR20		Output resistance: 600 Ω
	IR33x(D,A)7Hx(R,B)20 DN33x(D,A)7Hx(R,B)20	A = 4 SSR output	Max. output current: 20 mA
0 to 10 Vdc outputs	models		
	IR33B7LR20 DN33B7LR20	B = 1 relay + 1 x 0 to 10Vdc	Typical ramp time (10%-90%): 1 s
			Max output ripple: 50 mV
	IR33E7Hx(R,B)20 DN33E7Hx(R,B)20	E = 2 relays + 2 x 0 to 10Vdc	Max output current: 5 mA

Insulation guaranteed by the outputs	insulation from very low voltage parts/insulation between relay outputs & 0 to 10Vdc outputs		reinforced
			6 mm in air, 8 mm on surface
			3750V insulation
	insulation between outputs		basic
			3 mm in air, 4 mm on surface
			1250V insulation

IR receiver	On all models	
Clock with backup battery	IR33x(V,W,Z,D,A,B,E)7HB20, DN33x(V,W,Z,A,B,E)7HB20	
Buzzer	available on all models	
Clock	error at 25°C	± 10ppm (±5.3min/year)
	Error in range -10T60°C	-50ppm(±27 min/year)
	Ageing	< ±5ppm (±2.7min/year)
	Discharge time	6 months typical (8 months maximum)
	Recharge time	5 hours typical (< 8 hours maximum)

Operating temperature	IR33xxxxxx: -10T60 °C DN33x(V,W,Z,D,A,B,E)7LR20: -10T55°C DN33x(V,W,Z,D,A,B,E)7Hx(R,B)20: -10T50°C
Operating humidity	<90% rH non-condensing
Storage temperature	-20T70 °C
Storage humidity	<90% rH non-condensing
Front panel index of protection	IR33: assembly on smooth and indeformable panel with IP65 gasket
	DN33: front panel IP40, complete controller IP20
Construction of control device	Integrated electronic control device
Environmental pollution	2 normal
PTI of the insulating materials	Printed circuits 250, plastic and insulating materials 175
Period of stress across the insulating parts	Long
Class of protection against voltage surges	Category 2
Type of action and disconnection	1B relay contacts (microswitching)
Classification according to protection against electric shock	Class 2 when appropriately integrated
Device designed to be hand-held or integrated in hand-held devices	No
Software class and structure	Class A
Front panel cleaning	Only use neutral detergents and water
Carel serial network interface	External, available on all models
Programming key	Available on all models

	Type of connection				Size	Max current
Connections	model	relays/ SSR	power supply	probes		
	IR33x(V,W,Z,D,A,B,E)7x(H,L)x(R,B)20 DN33x(V,W,Z,A,B,E)7x(H,L)x(R,B)20	plug-in	plug-in	plug-in	for cables from 0.5 to 2.5 mm^2	12A
	Correct sizing of the power and connection cables between the controller and the loads is the responsibility of the installer.					
	In the max load and max operating temp. conditions, the cables used must be suitable for operation up to 105°C.					

Case	plastic	IR33x(V,W,Z,D,A,B,E)7x(H,L)x(R,B)20 DN33x(V,W,Z,A,B,E)7x(H,L)x(R,B)20	dimensions	IR33:34.4x76.2x79mm DN33:111x70x60
			mounting depth	IR33: 70.5mm DN33: 60mm

Assembly	IR33: on smooth and indeformable panel DN33 :DIN rail	IR33 :side fastening brackets, to be pressed in fully
	drilling template	IR33:dimensions 28.8±0.2 x 70.8±0.2mm
		DN33(display):dimensions 28.8±0.2 x 70.8±0.2mm
Display	digits	3 digit LED
	display	from –99 to 999
	operating status	indicated with graphic icons on the display
Keypad	4 silicone rubber buttons	

9.2 Cleaning the controller

When cleaning the controller do not use ethanol, hydrocarbons (petrol), ammonia and by-products. Use neutral detergents and water.

9.3 Product codes

CODE		Description
Flush mount	DIN rail mounting	
IR33V7HR20	DN33V7HR20	2 NTC/PTC,PT1000 input, 1 relay, buzzer, IR receiver, 115/230V
IR33V7HB20	DN33V7HB20	2 NTC/PTC,PT1000 input, 1 relay , buzzer, IR receiver, RTC, 115/230V
IR33V7LR20	DN33V7LR20	2 NTC/PTC,PT1000 input, 1 relay , buzzer, IR receiver, 12/24V
IR33W7HR20	DN33W7HR20	2 NTC/PTC,PT1000 input, 2 relays, buzzer, IR receiver, 115/230V
IR33W7HB20	DN33W7HB20	2 NTC/PTC,PT1000 input, 2 relays, buzzer , IR receiver, RTC, 115/230V
IR33W7LR20	DN33W7LR20	2 NTC/PTC,PT1000 input, 2 relays, buzzer, IR receiver, 12/24V
IR33Z7HR20	DN33Z7HR20	2 NTC/PTC,PT1000 input, 4 relays, buzzer, IR receiver, 115/230V
IR33Z7HB20	DN33Z7HB20	2 NTC/PTC,PT1000 input, 4 relays , buzzer, IR receiver, RTC, 115/230V
IR33Z7LR20	DN33Z7LR20	2 NTC/PTC,PT1000 input, 4 relays , buzzer, IR receiver, 12/24V
IR33A7HR20	DN33A7HR20	2 NTC/PTC,PT1000, 4 SSR, buzzer, IR receiver, 115/230V
IR33A7HB20	DN33A7HB20	2 NTC/PTC,PT1000 input, 4 SSR, BUZZER, IR receiver, RTC, 115/230V
IR33A7LR20	DN33A7LR20	2 NTC/PTC,PT1000 input, 4 SSR, buzzer, IR receiver, 12/24V
IR33D7HR20	-	2 NTC/PTC,PT1000 input, 1 SSR, buzzer, IR receiver, 115/230V
IR33D7HB20	-	2 NTC/PTC,PT1000 input, 1 SSR, buzzer, IR receiver, RTC, 115/230V
IR33D7LR20	-	2 NTC/PTC,PT1000 input, 1 SSR, buzzer, IR receiver, 12/24V
IR33B7HR20	DN33B7HR20	2 NTC/PTC,PT1000 input, 1 relay + 1 AO, buzzer, IR receiver, 115/230V
IR33B7HB20	DN33B7HB20	2 NTC/PTC,PT1000 input, 1 relay + 1 AO, buzzer, IR receiver, RTC, 115/230V
IR33B7LR20	DN33B7LR20	2 NTC/PTC,PT1000 input, 1 relay + 1 AO, buzzer, IR receiver, 12/24V
IR33E7HR20	DN33E7HR20	2 NTC/PTC,PT1000 input, 2 relays + 2 AO, buzzer, IR receiver, 115/230V
IR33E7HB20	DN33E7HB20	2 NTC/PTC,PT1000 input, 2 relays + 2 AO, buzzer, IR receiver, RTC, 115/230V
IR33E7LR20	DN33E7LR20	2 NTC/PTC,PT1000 input, 2 relays + 2 AO, buzzer, IR receiver, 12/24V
IROPZKEY00		Programming key
IROPZKEYA0		Programming key with power supply
IROPZ48500		RS485 serial interface
IROPZ485S0		RS485 serial interface with automatic recognition of TxRx+ & TxRx-
	IROPZSER30	RS485 serial card for DN33
CONV0/10A0		Analogue output module
CONV0NOFF0		ON/OFF output module
IRTRUES000		Remote control

9.4 Software revisions

REVISION	Description	
1.0	Functions active starting from software version higher than 1.0	
	FUNCTION	Parameter
	Soft start	c57
	0 to 10 V outputs	c19=5,6 / c66, c67
		d36, d40, d44, d48
		d37, d41, d45, d49