

iSmart(V4) Intelligent Relay



Technical Datasheet

Key Features

- Digital, Analogue & Temperature Inputs
- Relay, Transistor & Analogue Outputs
- Powerful Control Logic in Ladder or Functional Block Diagram
- Available with or without Text HMI Screen
- Programmable Function Keys
- PID Control (up to 30 Loops)
- Retentive Data Registers
- High Speed Inputs & PWM Outputs
- Multi-Language Selectable
- **NEW FEATURE** Modbus TCP
- **NEW FEATURE** Web Server
- **NEW FEATURE** Data Logging via MicroSD Card
- **NEW FEATURE** Astronomical Clock Function
- **NEW FEATURE** Built in Ethernet Port
- **COMING SOON** Email
- **NEW FEATURE** Read / Write Program via MicroSD Card (32Gb)



Options & Ordering Codes

	Part Number	Power	Digital In	Digital Out	Analogue In	Analogue Out	HMI	Comments
BASE MODELS	SMT4-EA-R10	100-240VAC	6 AC	4 (8A Rly)	-	-	Yes	
	SMT4-EA-R20	100-240VAC	12 AC	8 (8A Rly)	-	-	Yes	
	SMT4-ED-R12	12-24VDC	8 DC*1	4 (8A Rly)	2 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)
	SMT4-ED-R20	12-24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)
	SMT4-BD-R12	12-24VDC	8 DC*1	4 (8A Rly)	2 (0-10V)	-	No	2 High Speed Inputs (up to 1kHz)
	SMT4-BD-R20	12-24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	No	2 High Speed Inputs (up to 1kHz)
	SMT4-CD-R20	12-24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	2 HSI (1kHz), RS485 Modbus, Link
EXPANSIONS / EXTRAS	SMT-MA-R8	100-240VAC	4 AC	4 (8A Rly)	-	-	-	Maximum 3 per Base Unit
	SMT-MD-R8	24VDC	4 DC	4 (8A Rly)	-	-	-	Maximum 3 per Base Unit
	SMT-MD-T8	24VDC	4 DC	4 (0.5A Trn)	-	-	-	Maximum 3 per Base Unit
	SMT-MD-4AI	24VDC	-	-	4 (V, mA)	-	-	Maximum 1 per Base Unit
	SMT-4PT	24VDC	-	-	4 (PT100)	-	-	Maximum 1 per Base Unit
	SMT-2AO	24VDC	-	-	-	2 (V, mA)	-	Maximum 2 per Base Unit
MADE TO ORDER	SMT4-BD-T12	24VDC	8 DC*1	4 (0.5A Trn)	2 (0-10V)	-	No	2 PWM (0.5kHz)
	SMT4-BD-T20	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	No	2 PWM (0.5kHz)
	SMT4-BA-R10	100-240VAC	6 AC	4 (8A Rly)	-	-	No	
	SMT4-BA-R20	100-240VAC	12 AC	8 (8A Rly)	-	-	No	
	SMT4-ED-T12	24VDC	8 DC*1	4 (0.5A Trn)	2 (0-10V)	-	Yes	2 PWM (0.5kHz)
	SMT4-ED-T20	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	Yes	2 PWM (0.5kHz)
	SMT4-CD-T20	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	Yes	2 PWM (0.5kHz), RS485 Modbus

*1 Analogue inputs can be used as digital inputs. Number shown includes this.

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Technical Specifications

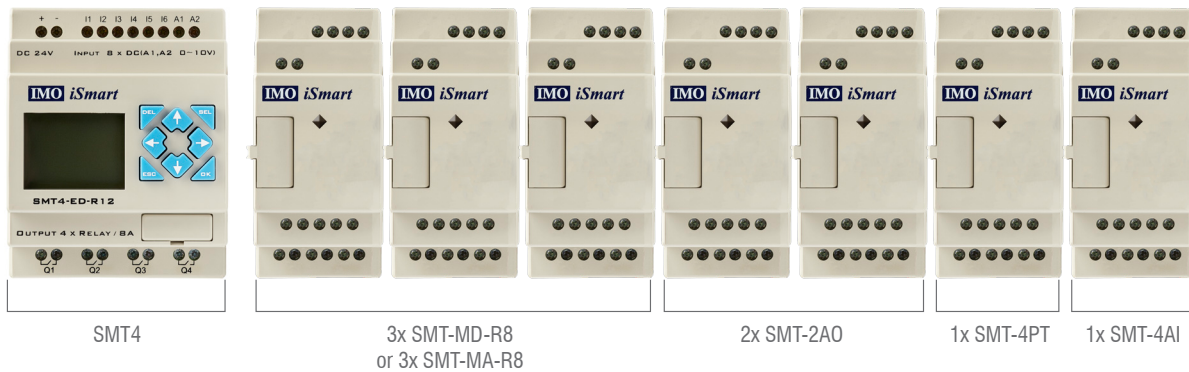
Technical Datasheet

	AC Models		DC Models		Expansion Units
	10 I/O	20 I/O	12 I/O	20 I/O	
Operating Temperature	-20 to +55°C				
Storage Temperature	-40 to +70°C				
Humidity	5 - 90% RH no frost				
Vibration	IEC60068-2-6 (0.075mm Amplitude / 1G Acceleration)				
Impact Resistance	IEC60068-2-28 (15g peak, 1ms duration)				
Installation	IP20, Direct or DIN Rail Mount (TS35 - 35mm)				
Noise Resistance	ESD: ±4kV, Air Discharge: ±8kV, EFT: Power AC: ±2kV, AC: ±1kV, CS: 0.15-80MHz 10V/m, RS: 80-1000MHz 10V/m, EMI: EN55011 Class B				
Approvals	CE, UL, cUL				
Dimensions	72x90x59.6mm	126x90x59.6mm	72x90x59.6mm	126x90x59.6mm	38x90x59.6mm
Weight	230g	345g	220g	345g	190g
Clock Accuracy	2s per day at 0-55°C / 5s per day over 55°C				
Power Supply	85-260VAC, 19.6-28.8VAC (24V)		19.6-28.8VDC (24V, 10.2-13.8VDC (12V)		Same as equivalent Base Unit
Power Consumption	2.4W	2.4W	3W	4.4W	1W
Input Threshold	ON: >79VAC, OFF: <40VAC		ON: >9.5VDC, OFF: <5VDC		Same as equivalent Base Unit
Input Current	1.3mA		3.2mA		Same as equivalent Base Unit
Input Impedance	200kΩ		8kΩ		Same as equivalent Base Unit
Input Response Time	50-90ms (240-120VAC)		3.5ms		Same as equivalent Base Unit
Input Max. Voltage	260VAC		30VDC		Same as equivalent Base Unit
High Speed Input (Hz)	-		1000 (I1), 500/500 (I1/I2)		-
Standard Input (Hz)	-		<40		<40
Max. Digital Output Current	Relay: 8A (Resistive), 2A (Inductive)		Relay: 8A(R), 2A(I), Trans: 0.5A(R), 0.2A(I)		Same as equivalent DC model
Min. Digital Output Current	16.7mA		0.2mA		Same as equivalent Base Unit
PWM Transistor O/P (Hz)	-		500 (1ms ON, 1ms OFF)		-
Relay Life (No Load)	10 million operations				
Analogue Input Range	-		0.00 to 9.99V		0.00 to 9.99V
Analogue Input Resolution	-		12 bit nominal (0.01V)		12 bit nominal (0.01V)
Analogue Input Impedance	-		45kΩ		22.5kΩ
RTD Input Range	-		-		-100 to +600°C
RTD Input Resolution	-		-		0.1°C
RTD Excitation Current	-		-		0.33mA
Analogue Output Range	-		-		0-10V, 4-20mA
Analogue Output Resolution	-		-		0.01V, 0.01mA
Output External Power	-		Less than AC 265, DC30V (Relay)		23.9-24.1V (Transistor)
Program Size	1200 Steps (600 Lines of Ladder), 500 Function Blocks				
Program Backup	Battery Backed Up (Lifetime: 5 years)				

Maximum Expansion

Base Unit + 7 Expansion Modules

Please note: For higher I/O Counts, Link Function (CD Models Only) must be used to link up to 8 CD-type Base Units



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Programme Specification

Technical Datasheet

SYSTEM		Operating System Requirements		Windows 10 & 11		
		Programming Languages		Ladder or Function Block Diagram		
		Program Memory (Rungs / Blocks)		600 / 500 NEW FEATURE		
		iSmart Memory Type		Flash		
		Execution Speed		5ms / cycle		
		LCD Display		4 Lines x 16 Characters		
BASIC FUNCTIONS			Ladder	FBD		
	Timers					
	Maximum Number		31		250	
	Timing Ranges		0.01secs. to 9999mins.			
	Counters					
	Maximum Number		31		250	
	Highest Count		999999			
	Resolution		1			
	RTC					
	Number Available		31		250	
	Resolution		1 min.			
	Time Span Available (1 week etc)		week / year-month-day-hour-minute			
	Markers (M, N)					
	Number Available (M)		127		127	
	Number Available (N)		127		127	
	Data Registers					
	Number Available		240		240	
	PID Functions					
	Number Available		15		30	
	Parameter Ranges		1-32767			
Add Subtract Functions						
Number Available		31		250		
Multiply Divide Functions						
Number Available		31		250		
Analogue Ramp Functions						
Number Available		15		30		
MU Functions						
Number Available		15		30		
Function		Basic Modbus Master				
Compare Function						
Number Available		31		250		
Available to Compare		Timer Value, Counter Value, Analogue Input				
SPECIAL FUNCTIONS	HMI Screens					
	Number Available		31			
	Display / Edit		Preset / Current Values & Free Text			
	PWM Function					
	Number Available		2 (1-32767ms) Transistor Type Only			
	Communication Functions					
	Remote I/O		1 Master iSmart with Program, Multiple Slaves can be used as I/O			
DataLink		Link up to 8 iSmarts in a Local Network via RS485				
Communication Options						
Slave Device Only		Modbus RTU, Ethernet				

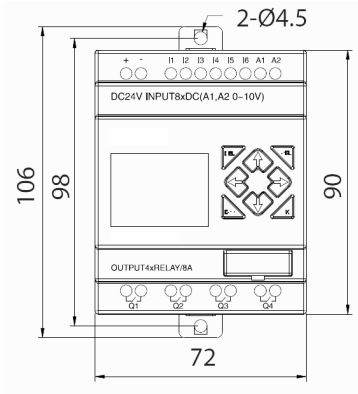
Please Note: Not all program functions are displayed in this list, such as AND, NAND, OR, NOT, NOR, XOR, BIT LOGIC TABLE, SHIFT REGISTER, PULSE, SET/RESET, MULTIPLEX etc.

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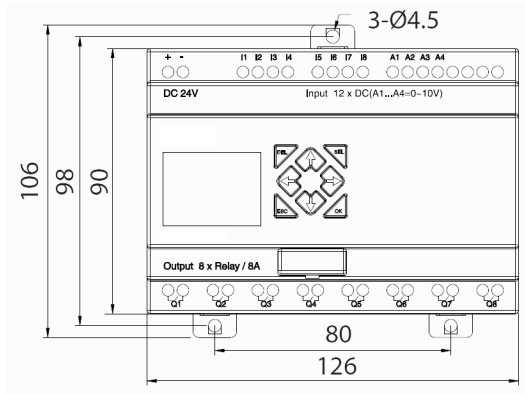


Dimensions (mm)

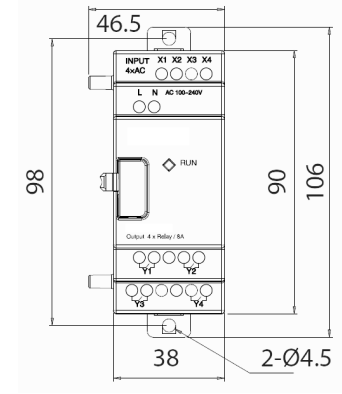
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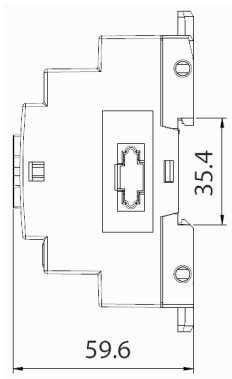
10/12-Point Models



20-Point Models



Expansion Modules



All Modules (Side)

Successful Applications



Lifts / Elevators

The iSmart has been used for a variety of elevation applications such as loading-dock scissor lifts, disabled access systems, to home-mobility lifts.



Custom Vehicles

Being available with a 12Vdc power has allowed some interesting applications, such as operating the doors and other gadgets on this customised vehicle.



Pumping / Level Control

Controlling pumps either through analogue or digital level sensors, or even times of the day from the Real Time Clock.



Distributed Control

With various comms options available for networking the iSmart, becomes a powerful and cost effective add-on for other IMO automation equipment such as the i3 Controller.



Heating & Ventilation

Due to its compact size, easy programming, and communication options, integrating into a free-standing HVAC system, or BMS controlled system could not be easier.



Agricultural

Whether you need to control irrigation systems, animal feed systems, silo or water tank levels, the iSmart is more than capable.