

# iSmart(V3) 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)
- Maths Functions
- Retentive Data Registers
- High Speed Inputs & PWM Outputs
- Link function
- Multi-Language Selectable
- Expansion Modules for More I/O



## Options & Ordering Codes

	Part Number	Power	Digital In	Digital Out	Analogue In	Analogue Out	HMI	Comments
BASE MODELS	SMT-EA-R10-V3	100-240VAC	6 AC	4 (8A Rly)	-	-	Yes	
	SMT-EA-R20-V3	100-240VAC	12 AC	8 (8A Rly)	-	-	Yes	
	SMT-ED-R12-V3	24VDC	8 DC*1	4 (8A Rly)	2 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)
	SMT-ED-R20-V3	24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)
	SMT-ED12-R12-V3	12VDC	8 DC*1	4 (8A Rly)	2 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)
	SMT-BA-R10-V3	100-240VAC	6 AC	4 (8A Rly)	-	-	No	
	SMT-BA-R20-V3	100-240VAC	12 AC	8 (8A Rly)	-	-	No	
	SMT-BD-R12-V3	24VDC	8 DC*1	4 (8A Rly)	2 (0-10V)	-	No	2 High Speed Inputs (up to 1kHz)
	SMT-BD-R20-V3	24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	No	2 High Speed Inputs (up to 1kHz)
	SMT-CD-R20-V3	24VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	2 HSI (1kHz), RS485 Modbus, Link
	SMT-ED-T12-V3	24VDC	8 DC*1	4 (0.5A Trn)	2 (0-10V)	-	Yes	2 PWM (0.5kHz)
	SMT-ED-T20-V3	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	Yes	2 PWM (0.5kHz)
	SMT-CD-T20-V3	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	Yes	2 PWM (0.5kHz), RS485 Modbus
SMT-ED12-R20-V3	12VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	2 High Speed Inputs (up to 1kHz)	
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
	SMT-PC03	-	-	-	-	-	-	PC-Link Programming Cable
	SMT-PM04-V3	-	-	-	-	-	-	32K Flash Memory Module
	SMT-USB	-	-	-	-	-	-	USB Programming Cable
MADE TO ORDER	SMT-BD-T12-V3	24VDC	8 DC*1	4 (0.5A Trn)	2 (0-10V)	-	No	2 PWM (0.5kHz)
	SMT-BD-T20-V3	24VDC	12 DC*1	8 (0.5A Trn)	4 (0-10V)	-	No	2 PWM (0.5kHz)
	SMT-CD12-R20-V3	12VDC	12 DC*1	8 (8A Rly)	4 (0-10V)	-	Yes	RS485 Modbus, Link Function
	SMT-EA24-R12-V3	24VAC	6 AC	4 (8A Rly)	-	-	Yes	24VAC Inputs and Power
	SMT-EA24-R20-V3	24VAC	12 AC	8 (8A Rly)	-	-	Yes	24VAC Inputs and Power
SMT-MA24-R8	24VAC	4 AC	4 (8A Rly)	-	-	-	24VAC Inputs and Power	

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

# iSmart(V3) Intelligent Relay



## Technical Specifications

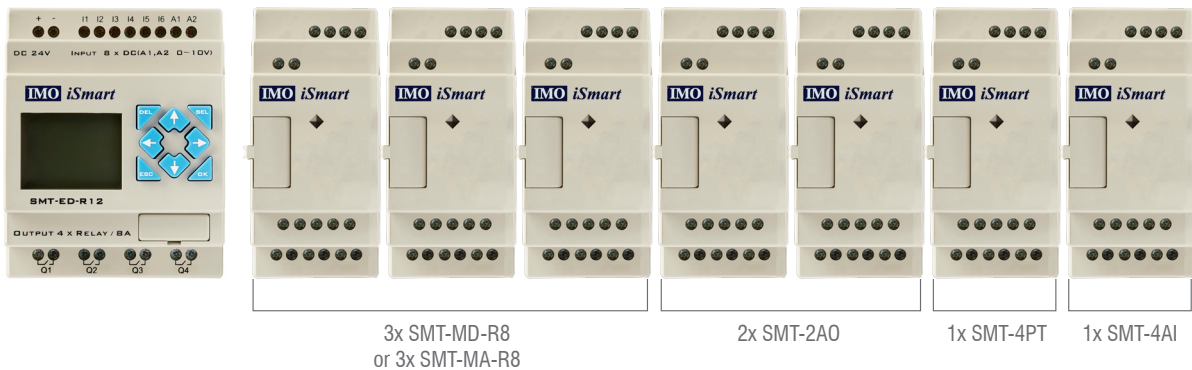
## Technical Datasheet

	AC Models		DC Models		Expansion Units
	Power	Digital In	Digital Out	Analogue In	
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				
RTC Clock Accuracy	Max. 6 minutes/month, 1 Farad Capacitor for 200hr run-on after power-down				
Dimensions	72x90x59.6mm	126x90x59.6mm	72x90x59.6mm	126x90x59.6mm	38x90x59.6mm
Weight	230g	335g	220g	345g	150g
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	3.2W	12W	2W	3.1W	1W
Input Threshold	ON: >79VAC, OFF: <40VAC		ON: >15VDC, 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
Program Size	1200 Steps (300 Lines of Ladder), 260 Function Blocks				

## 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



# iSmart(V3) Intelligent Relay



## Programme Specification

Technical Datasheet

SYSTEM	Operating System Requirements	Windows 10		
	Programming Languages	Ladder or Function Block		
	Program Memory (Rungs / Blocks)	300 / 260		
	iSmart Memory Type	32kbyte Flash (EEPROM)		
	Execution Speed	10ms / cycle LAD, 6ms / cycle FBD		
	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)	63	63	
	Number Available (N)	63	63	
	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 (CD Versions only)			
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, 1 Slave used as I/O		
DataLink	Link up to 8 iSmarts in a Local Network			
Communication Options				
Slave Device Only	Modbus RTU, DeviceNet, Profibus, Ethernet			

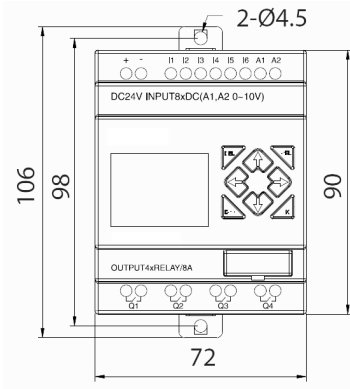
Please Note: Not all program functions are displayed in this list, such as AND, NAND, OR, NOT, NOR, XOR, BIT LOGIC TABLE, SHIFT REGISTER, PULSE, SET/RESET, MULTIPLEX etc.

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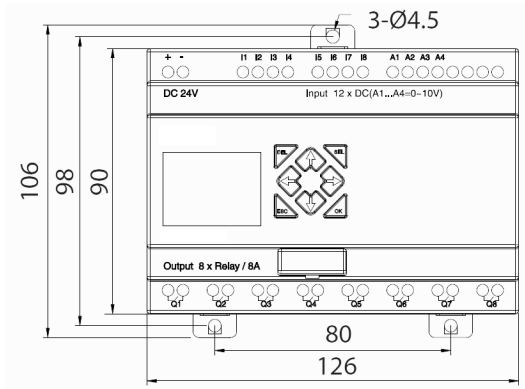


Technical Datasheet

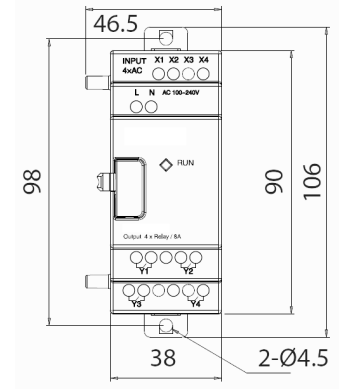
## Dimensions (mm)



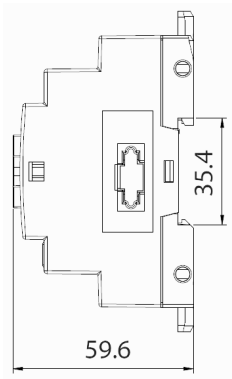
10/12-Point Models



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.



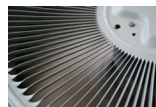
### Pumping / Level Control

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.