iSmart Intelligent Relays (V3)

- Digital, Analogue and Temperature Inputs
- Relay, Transistor and Analogue Outputs
- Powerful control logic in Ladder or Functional Block Diagram
- Available with or without Text HMI screen including programmable function keys
- PID control (up to 30 loops)
- Maths Functions
- Retentive Data Registers
- High Speed Inputs and PWM Outputs
- Link Function
- Multi-language Selectable
- CE, UL, cUL approval
- Expansion modules for more I/O and more communication

Model Selection Guide

	Part Number:	Power	Digital In	Digital Out	Analogue In	Analogue Out	HMI	Comments
BASE MODELS (STOCKED)	**SMT-EA-R10-V3**	100-240Vac	6 AC	4 (8A Rly)	-	-	Y	
	SMT-EA-R20-V3	100-240Vac	12 AC	8 (8A Rly)	-	-	Y	
	SMT-ED-R12-V3	24Vdc	8 DC*	4 (8A Rly)	2 (0-10V)	-	Y	2 High Speed Inputs (up to 1Khz)
	SMT-ED-R20-V3	24Vdc	12 DC*	8 (8A Rly)	4 (0-10V)	-	Y	2 High Speed Inputs (up to 1Khz)
	SMT-ED12-R12-V3	12Vdc	8 DC*	4 (8A Rly)	2 (0-10V)	-	Y	2 High Speed Inputs (up to 1Khz)
	SMT-BA-R10-V3	100-240Vac	6 AC	4 (8A Rly)	-	-	N	
	SMT-BA-R20-V3	100-240Vac	12 AC	8 (8A Rly)	-	-	N	
	SMT-BD-R12-V3	24Vdc	8 DC*	4 (8A Rly)	2 (0-10V)	-	N	2 High Speed Inputs (up to 1Khz)
	SMT-BD-R20-V3	24Vdc	12 DC*	8 (8A Rly)	4 (0-10V)	-	N	2 High Speed Inputs (up to 1Khz)
	SMT-CD-R20-V3	24Vdc	12 DC*	8 (8A Rly)	4 (0-10V)	-	Y	2 HSI (1Khz), RS485 Modbus, Link
EXPANSION / EXTRAS (STOCKED)	**SMT-MA-R8**	100-240Vac	4 AC	4 (8A Rly)			-	Max 3 per Base
	SMT-MD-R8	24Vdc	4 DC	4 (8A Rly)			-	Max 3 per Base
	SMT-MD-T8	24Vdc	4 DC	4(0.5A Trn)			-	Max 3 per Base
	SMT-MD-4AI	24Vdc			4 (V, mA)		-	Max 1 per Base
	SMT-4PT	24Vdc			4 PT100		-	Max 1 per Base
	SMT-2AO	24Vdc				2 (V, mA)	-	Max 2 per Base
	SMT-MODBUS	24Vdc					-	RS485 Modbus**
	SMT-DEVICENET	24Vdc					-	DeviceNet Slave**
	SMT-PC03	-						PC-Link Programming cable
	SMT-PM04-V3	-						32K Flash Memory module
MADE TO ORDER	**SMT-ED-T12-V3**	24Vdc	8 DC*	4(0.5A Trn)	2 (0-10V)		Y	2 PWM (0.5Khz)
	SMT-ED-T20-V3	24Vdc	12 DC*	8(0.5A Trn)	4 (0-10V)		Y	2 PWM (0.5Khz)
	SMT-BD-T12-V3	24Vdc	8 DC*	4(0.5A Trn)	2 (0-10V)		N	2 PWM (0.5Khz)
	SMT-BD-T20-V3	24Vdc	12 DC*	8(0.5A Trn)	4 (0-10V)		N	2 PWM (0.5Khz)
	SMT-CD-T20-V3	24Vdc	12 DC*	8(0.5A Trn)	4 (0-10V)		Y	2 PWM (0.5Khz), RS485 Modbus
	SMT-CD12-R20-V3	12Vdc	12 DC*	8 (8A Rly)	4 (0-10V)		Y	RS485 Modbus, Link Function
	SMT-ED12-R20-V3	12Vdc	12 DC*	8 (8A Rly)	4 (0-10V)	-	Y	2 High Speed Inputs (up to 1Khz)
	SMT-EA24-R12-V3	24Vac	6 AC	4 (8A Rly)			Y	24Vac inputs, and power
	SMT-EA24-R20-V3	24Vac	12 AC	8 (8A Rly)			Y	24Vac inputs, and power
	SMT-MA24-R8	24Vac	4 AC	4 (8A Rly)				24Vac inputs, and power
	SMT-ENET	24Vdc					-	Ethernet Expansion**
	SMT-PROFIBUS	24Vdc					-	Profibus Slave Expansion**

***Analogue Inputs can be used as Digital Inputs, number shown includes this**

****One comms expansion module per base unit**

Maximum Expansion

Base unit + 8 Expansion Modules

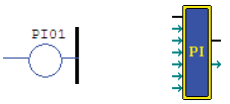
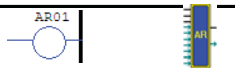
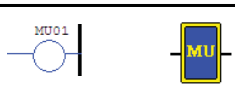
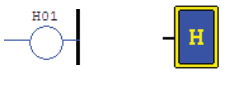
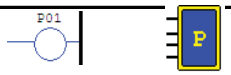
For higher I/O Counts, Link Function (CD Models only) must be used to link up to 8 CD-type base units.

Hardware Specification

	AC Models		DC Models		Expansion Units
	10 I/O	20 I/O	12 I/O	20 I/O	
Operating Temperature	-10 to 60 °C				
Storage Temperature	-20 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, 11ms duration)				
Installation	IP20, Direct or Din rail mount (35mm)				
Noise Resistance	ESD:±4KV, air discharge ±8KV, EFT: Power AC:±2KV, DC:±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, 1Farad capacitor for 200Hr run-on after power-down				
Dimensions	72 x 90 x 59.6mm	126 x 90 x 59.6mm	72 x 90 x 59.6mm	126 x 90 x 59.6mm	38 x 90 x 59.6mm
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 Equiv Base Unit
Power Consumption	3.2W	12W	2W	3.1W	1W
Input Threshold	ON: >79Vac, OFF: <40Vac		ON: >15Vdc, OFF: <5Vdc		Same as Equiv Base Unit
Input Current	1.3mA		3.2mA		Same as Equiv Base Unit
Input Impedance	200KΩ		8KΩ		Same as Equiv Base Unit
Input Response Time	50-90ms (240-120Vac)		3.5ms		Same as Equiv Base Unit
Input Max Voltage	260Vac		30Vdc		Same as Equiv 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 Equiv DC model
Min Digital Output Current	16.7mA		0.2mA		Same as Equiv 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		0.00-9.99V
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				

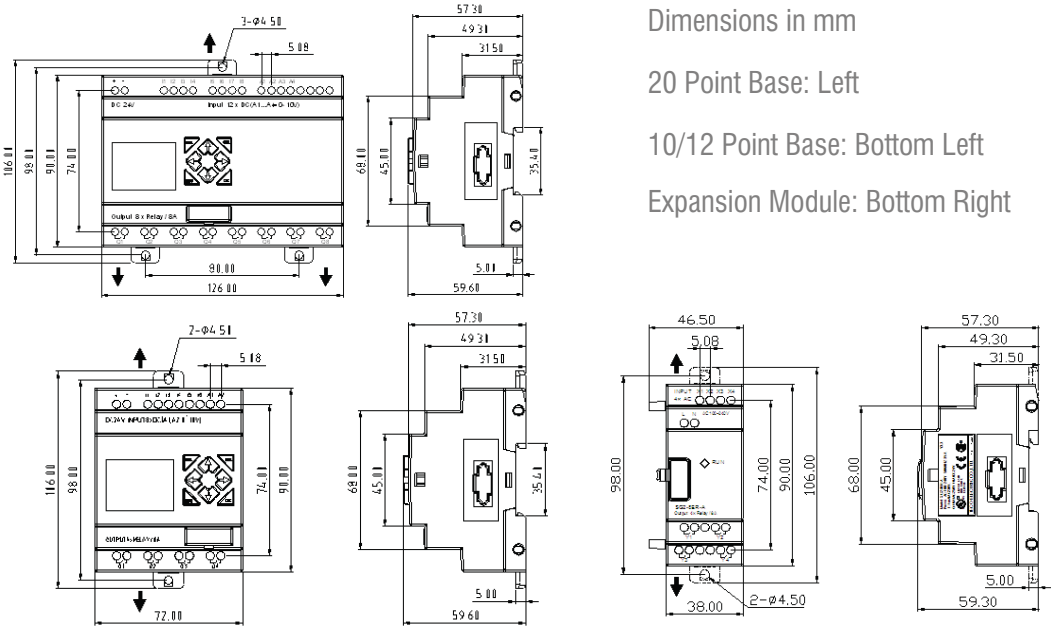
Programme Specification

SYSTEM	Operating System requirements	Windows 98/ME/NT/2000/XP	
	Programming languages	Ladder or Function Block	
	Program Memory (Rungs/Blocks)	300/260	
	*i*Smart Memory Type	32Kbyte Flash (EEPROM)	
	Execution Speed	10ms/cycle LAD, 6ms/cycle FBD	
	LCD Display	4 lines x 16 characters	

		Ladder	FBD	
BASIC	**Timers**			
	Maximum Number	31	250	
	Timing ranges	0.01s ~ 9999min		
	Counters			
	Maximum Number	31	250	
	Highest count	999999		
	Resolution	1		
	RTC			
	Number available	31	250	
	Resolution	1min		
	Time span available (1/week/etc)	week/year-month-day-hour-min		
	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 and Free text.		
	PWM Function			
	Number Available	2 (1-32767ms) Transistor Type Only		
	Communication Functions			
	Remote I/O	1 Master ***i***Smart with program, 1 Slave used as I/O		
	DataLink	Link up to 8 ***i***Smarts in a local network		
	Communication Options			
	Slave Device only	Modbus RTU, DeviceNet, Profibus, Ethernet		

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

Dimensions



Dimensions in mm

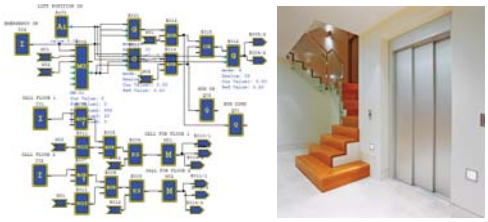
20 Point Base: Left

10/12 Point Base: Bottom Left

Expansion Module: Bottom Right

Successful Application

Lift / Elevators:

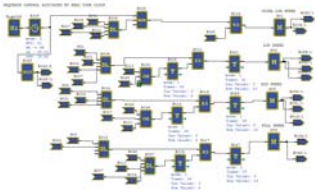


The iSmart has been used for a variety of elevation applications such as loading-dock scissor lifts,disabled access systems, to home-mobility lifts.

Custom Vehicle:

Being available with a 12Vdx 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 sonsors,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 and 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.