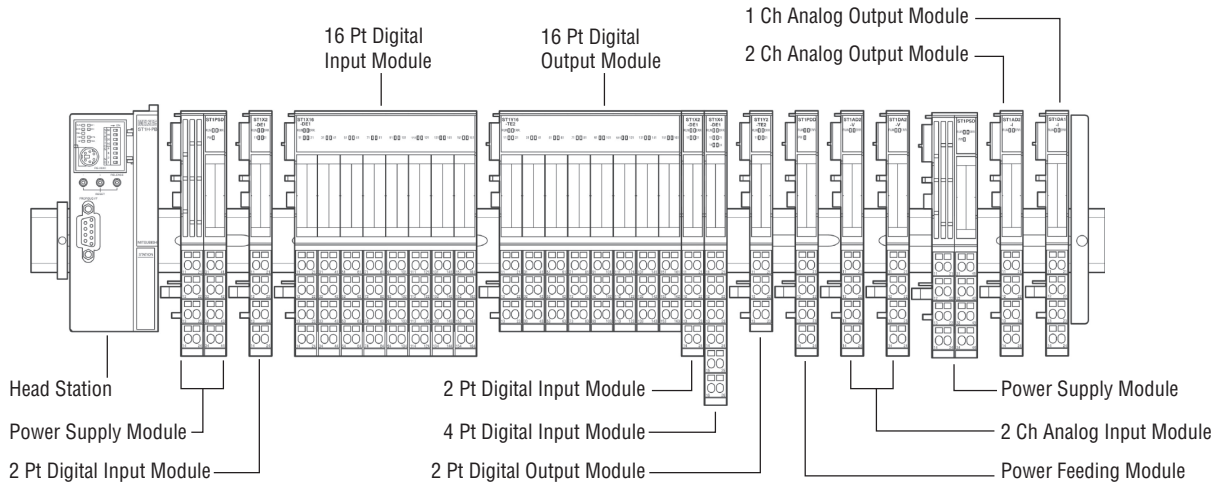


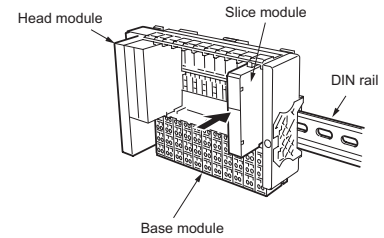
ST Series Slice Type Remote I/O



The ST Series Remote I/O solution, where “ST” stands for “Slice Terminal” after their extremely slim profile (~0.5in), places easily-expandable remote I/O devices on decentralized head stations. This allows users to mix-and-match between digital and analog I/O types on a single network node. This product promotes ease of design flexibility and ease of maintenance, including online I/O module replacement. The ST Series has dedicated software which is used for system configuration, commissioning, and online troubleshooting and diagnostics. Supporting both CC-Link and PROFIBUS/DP, this product is perfect for applications with modular remote I/O requirements.

Key Features:

- Network Head Stations for CC-Link and PROFIBUS/DP
- Mix-and-match I/O types: Digital and Analog
- I/O-count expansion as low as 2-point up to 16-point; 63 slices max
- Online Module Change without rewiring
- Selectable Spring or Screw clamp terminals
- Single software: GX Configurator-ST
- DIN Rail mounting



Head Stations

The head station is the network interface that connects the remote I/O node to its network master. Head stations are the only ST Series modules that do not require a separate base module.

Model Number	ST1H-BT	ST1H-PB
Stocked Item	S	S
Certification	CE	CE
Communication Protocol	CC-Link	PROFIBUS/DP
Communication Interface	CC-Link	RS-485 (D-SUB 9-pin)
Operation Modes	Remote Device Station	Synch mode, Freeze mode
Max. Network Distance	1200m	4800m (with 3 repeaters)
Programming Interface	RS-232 Mini-DIN	
Modules Per Head Station	63 Slices Max.	
Internal Power Consumption	410mA	530mA
External Power Supply	ST1PSD	
Weight (kg)	0.11	0.10
Dimensions (W x H x D) mm	50.5 x 114.5 x 74.5	

Power Supply Modules

There are two lines of power to consider; 5VDC for the back-plane communication, and 24VDC for the Head Station and I/O modules. The ST Series is run off of 24VDC power, but may require more than one power supply module and/or type depending on the size and contents of the system configuration.

Model Number		ST1PSD	ST1PDD	
Stocked Item		S	S	
Certification		CE	CE	
Occupied Slices		2	1	
Power Supply		24VDC ($\pm 20\%$)		
Internal Power Consumption (5 VDC)		-	60mA	
Max. Output Current (5 VDC)		2.0A	-	
Max. Output Current (24 VDC)		8A	8A	
Weight (kg)		0.06	0.03	
Dimensions (W x H x D) mm		25.2 x 55.4 x 74.1	12.6 x 55.4 x 74.1	
Applicable Base Modules	24 VDC Module Power	Spring Clamp	ST1B-S4P2-H-SET	ST1B-S4P2-D
		Screw Clamp	ST1B-E4P2-H-SET	ST1B-E4P2-D
	5 VDC Bus Refresh	Spring Clamp	ST1B-S4P2-R-SET	-
		Screw Clamp	ST1B-E4P2-R-SET	-

Digital I/O Modules

The ST Series Digital Input/Output modules come in various sizes and capacities, with counts as low as 2 points and as high as 16 points. These modules can be assembled in any order and mixed with analog I/O modules as well. Each I/O module requires a corresponding base module, which will be individually keyed to that type of I/O module after the first use. This prevents spare modules to be placed in incorrect position during maintenance such as Online Module Change.

Digital Input Modules

Model Number	ST1X2-DE1	ST1X4-DE1	ST1X16-DE1	ST1X1616-DE1-S1	
Stocked Item	S	S	S	S	
Certification	CE	CE	CE	CE	
Occupied Slices	1	1	8	8	
Number of Input Points	2	4	16	32	
Rated Input Voltage	24VDC (+20/-15%)				
Rated Input Current	4mA	4mA	4mA	5mA	
Minimum Input Response Speed	0.5/1.5ms or less				
5VDC Internal Power Consumption	85	95	120	200	
Weight (kg)	0.03	0.03	0.11	0.11	
Dimensions (W x H x D) mm	12.6 x 55.4 x 74.1		100.8 x 55.4 x 74.1		
Applicable Base Modules	Spring Clamp	ST1B-S4X2	ST1B-S6X4	ST1B-S4X16	ST1B-S6X32
	Screw Clamp	ST1B-E4X2	ST1B-E6X4	ST1B-E4X16	ST1B-E6X32

Digital Output Modules

Model Number	ST1Y2-TE2	ST1Y16-TE2	ST1Y2-TPE3	ST1Y16-TPE3	ST1Y2-TE8	ST1Y2-R2	
Stocked Item	S	S	S	S	S	S	
Certification	CE	CE	CE	CE	CE	CE	
Occupied Slices	1	8	1	8	1	1	
Number of Output Points and Type	2 Transistor	16 Transistor	2 Transistor	16 Transistor	16 Transistor	2 Relay	
Rated Load Voltage	24VDC (+20/-15%)					24VDC (+20/-15%), 240VAC	
Maximum Load Current	0.5A/pt, 1A/com	0.5A/pt, 4A/com	1A/pt, 2A/com	1A/pt, 4A/com	2A/pt, 4A/com	24VDC 2A or 240VAC 2A / point, 4A/com	
Response Time	OFF – ON	1ms or less		0.5ms or less		1ms or less	10ms or less
	ON – OFF	1ms or less		1.5ms or less		1ms or less	12ms or less
Protection Function	-	-	Thermal and Short Circuit Protection		-	-	
5 VDC Internal Power Consumption	90mA	150mA	95mA	160mA	95mA	90mA	
Weight (kg)	0.03	0.11	0.03	0.11	0.04	0.04	
Dimensions (W x H x D) mm	12.6 x 55.4 x 74.1	100.8 x 55.4 x 74.1	12.6 x 55.4 x 74.1	100.8 x 55.4 x 74.1	12.6 x 55.4 x 74.1	12.6 x 55.4 x 74.1	
Applicable Base Modules	Spring Clamp	ST1B-S3Y2	ST1B-S3Y16	ST1B-S3Y2	ST1B-S3Y16	ST1B-S3Y2	ST1B-S4IR2
	Screw Clamp	ST1B-E3Y2	ST1B-E3Y16	ST1B-E3Y2	ST1B-E3Y16	ST1B-E3Y2	ST1B-E4IR2

Analog I/O Modules

The ST Series Analog Input/Output modules add 1 to 2 channels of analog-to-digital or digital-to-analog conversion per slice. These modules can be assembled in any order and mixed with digital I/O modules as well. Each I/O module requires a corresponding base module, which will be individually keyed to that type of I/O module after the first use. This prevents spare modules to be placed in incorrect position during maintenance such as Online Module Change.

Analog Input Modules

Model Number	ST1AD2-V	ST1AD2-I	ST1TD2	ST1RD2
Stocked Item	S	S	S	S
Certification	CE	CE	CE	CE
Occupied Slices	1	1	1	1
Number of Input Channels	2	2	2	2
Analog Input	-10 to +10V, 0 to +10V, 0 to 5V, 1 to 5V	0 to 20mA, 4 to 20mA	Thermocouple Input: K,T:0.3°C; E:0.2°C; J:0.1°C; B:0.7°C; R,S:0.8°C; N:0.4°C	PT100/PT1000
Absolute Maximum Input	±15V	±30mA	±4V, ±80µV	
Resolution	12bit+sign		4µV	0.1°C
Conversion Speed	0.1ms per channel		Cold junction temperature compensation setting not set: 30ms/ch, set: 60ms/ch	80ms per channel
5VDC Internal Power Consumption	110mA		95mA	80mA
Weight (kg)	0.04			
Dimensions (W x H x D) mm	12.6 x 55.4 x 74.1		12.6 x 55.4 x 77.6	
Applicable Base Modules	Spring Clamp	ST1B-S4IR2	ST1B-S4TD2	
	Screw Clamp	ST1B-E4IR2	ST1B-E4TD2	

Analog Output Modules

Model Number	ST1DA2-V-F01	ST1DA1-I-F01
Stocked Item	S	S
Certification	CE	CE
Occupied Slices	1	1
Number of Output Channels	2	1
Analog Output Range	-10 to +10V, 0 to +10V, 0 to 5V, 1 to 5V	0 to 20mA, 4 to 20mA
Absolute Maximum Input	±15V	±30mA
Resolution	12bit+sign	
Conversion Speed	0.1ms per channel	
5VDC Internal Power Consumption	95mA	
Weight (kg)	0.04	
Dimensions (W x H x D) mm	12.6 x 55.4 x 74.1	
Applicable Base Modules	Spring Clamp	ST1B-S4IR2
	Screw Clamp	ST1B-E4IR2

Absolute Encoder Input Module

Model Number	ST1SS1	
Stocked Item	S	
Certification	CE	
Occupied Slices	2	
Counting Range	31-bit binary (0 to 2147483647)	
Resolution	2 to 31bits	
SSI Baud Rate	125kHz, 250kHz, 500kHz, 1MHz, 2MHz	
External Input	1pt, 24VDC, 12mA	
5VDC Internal Power Consumption (mA)	80	
Weight (kg)	0.04	
Dimensions (W x H x D) mm	12.6 x 77.6 x 55.4	
Applicable Base Modules	Spring Clamp	ST1B-S4IR2
	Screw Clamp	ST1B-E4IR2

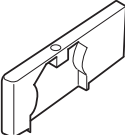

Base Modules and Accessories

The ST Series Slice I/O system requires a base module for each slice that mounts to the DIN Rail and houses the wiring and I/O module.

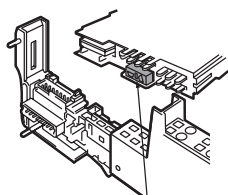
Product	Model Number	Description	Required Base Module (Choose Spring/Screw)		Optional Accessories (*1)	
			Spring Clamp	Screw Terminal	Extra Coding Element	
Head Stations	ST1H-BT	CC-Link Head Station	-	-	-	
	ST1H-PB	PROFIBUS Head Station	-	-	-	
Power Modules	Bus Refresh Module	ST1PSD	Head Station Power Supply	ST1B-S4P2-H-SET	ST1B-E4P2-H-SET	ST1A-CKY-06
			Expansion Power Supply	ST1B-S4P2-R-SET	ST1B-E4P2-R-SET	
	Service Power Module	ST1PDD	I/O Module Power Supply	ST1B-S4P2-D	ST1B-E4P2-D	
Digital I/O Modules	Input Modules (Source)	ST1X2-DE1	2pt, 24VDC	ST1B-S4X2	ST1B-E4X2	ST1A-CKY-02
		ST1X4-DE1	4pt, 24VDC	ST1B-S6X4	ST1B-E6X4	
		ST1X16-DE1	16pt, 24VDC	ST1B-S4X16	ST1B-E4X16	
		ST1X1616-DE1-S1	32pt, 24VDC	ST1B-S6X32	ST1B-E6X32	
	Output Modules	ST1Y2-TE2	2pt Source Trans, 24VDC, 0.5A	ST1B-S3Y2	ST1B-E3Y2	ST1A-CKY-08
		ST1Y2-TPE3	2pt Source Trans, 24VDC, 1A			
		ST1Y2-TE8	2pt Source Trans, 24VDC, 2A			
		ST1Y16-TE2	16pt Source Trans, 24VDC, 0.5A	ST1B-S3Y16	ST1B-E3Y16	
		ST1Y16-TPE3	16pt Source Trans, 24VDC, 1A			
		ST1Y2-R2	2pt Relay, 240VAC / 24VDC, 2A			
Analog I/O Modules	Analog Input Modules	ST1AD2-V	2ch Voltage Input	ST1B-S4IR2	ST1B-E4IR2	ST1A-CKY-17
		ST1AD2-I	2ch Current Input			ST1A-CKY-13
	Analog Output Modules	ST1DA2-V-F01	2ch Voltage Output			ST1A-CKY-14
		ST1DA1-I-F01	2ch Current Output			ST1A-CKY-11
	Temperature Input Modules	ST1TD2	Thermocouple Input	ST1B-S4TD2	ST1B-E4TD2	-
		ST1RD2	PT100, PT1000 Input			-
Absolute Encoder Input Module	ST1SS1	SSI Adapter	ST1B-S4IR2	ST1B-E4IR2	-	

Note 1: Model numbers include 10 pieces.

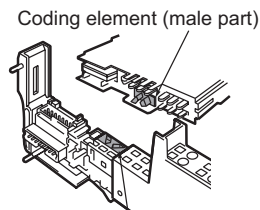
The ST Series is made to be DIN Rail mounted. Use the brackets and plates included with the head stations to fix the system in place. Spares are available as follows.

	Model Number	Stocked Item	Description
	ST1A-EPL	S	Included with the head module (1 piece)
	ST1A-EBR	S	Included with the head module (2 pieces)

After a base module is installed with a slice module the first time, it is coded for that specific type of slice module. This is to ensure that replacement slice modules are fitted to the correct base module and wiring. Replacement Coding Elements are available.



Coding element (male and female parts)
Before shipment

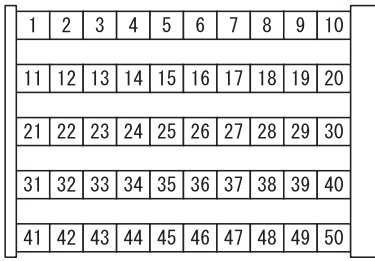


Coding element (female part)
Once slice module is
mounted on base module



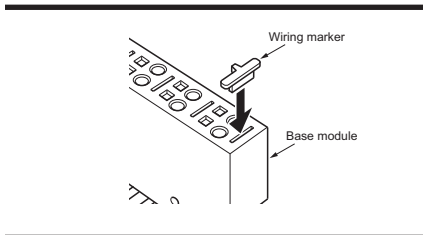
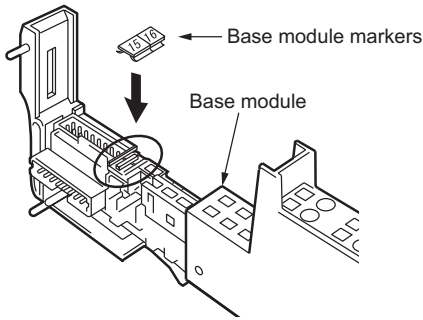
Base Module Marker

Base module markers and wiring markers also help prevent future mistakes during maintenance and service. They are available as shown below.

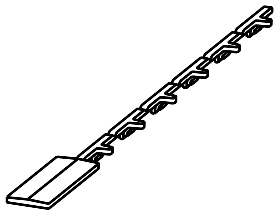


Model Number	Stocked Item	Description
ST1A-BMK-50	S	For No. 1 to 50
ST1A-BMK-100	S	For No. 51 to 100
ST1A-BMK-150	S	For No. 101 to 150
ST1A-BMK-200	S	For No. 151 to 200

Note: Model numbers include 10pcs



Wire Marker Color	Wire Type
Black	Signal wire
Red	DC Power Supply (+24V; +15V)
Blue	-, 0V, N
Red-Blue	System power supply
Yellow-Green	FG
Green	Shield
Brown	L1 phase



Model Number	Stocked Item	Description
ST1A-WMK-BL	S	Terminal mark, blue (-, DV, N)
ST1A-WMK-RD	S	Terminal mark, red (24VDC, 5VDC)
ST1A-WMK-GN	S	Terminal mark, green (Shield)
ST1A-WMK-BK	S	Terminal mark, black (Signal wire)
ST1A-WMK-BR	S	Terminal mark, brown (L1)
ST1A-WMK-RD/BL	S	Terminal mark, red/blue (Module driving power supply)
ST1A-WMK-GN/YL	S	Terminal mark, green/yellow (FG,(PF))
ST1A-WMK-WH	S	Terminal mark, white

Note: Model numbers include 10 pieces