



### Replacing ST24xxx and ST25xxx by M24xxx Devices

This document is written for users of the following ranges of EEPROM device:

**Table 1. Discontinued Ranges**

Vcc = 4.5 to 5.5 V		Vcc = 2.5 to 5.5 V	
ST24C01	ST24W01	ST25C01	ST25W01
ST24C02	ST24W02	ST25C02	ST25W02
ST24C04	ST24W04	ST25C04	ST25W04
ST24C08	ST24W08	ST25C08	ST25W08
ST24C16	ST24W16	ST25C16	ST25W16
ST24164		ST25164	
ST24E32		ST25E32	
ST24E64		ST25E64	

The above devices, in all variations of package and temperature range, are to be discontinued. They can be replaced by equivalents in the more advanced M24xxx Eagle range:

**Table 2. Eagle Range**

Vcc = 4.5 to 5.5 V	Vcc = 2.5 to 5.5 V
M24C01	M24C01-W
M24C02	M24C02-W
M24C04	M24C04-W
M24C08	M24C08-W
M24C16	M24C16-W
M24164	M24164-W
M24C32	M24C32-W
M24C64	M24C64-W

#### ISSUES ADDRESSED IN THIS APPLICATION NOTE:

- Discontinued ranges
- Eagle range
- Approximate equivalents when replacing with members of the Eagle range
- Use of the Protect Enable (PRE) pin
- Use of the Mode (MODE) pin for write accesses of more than 4 bytes
- Use of the Mode (MODE) pin for write accesses of more than 8 bytes

## AN995 - APPLICATION NOTE

For the majority of applications, the M24 Eagle range can be treated as pin compatible and functionally equivalent to the ST24 and ST25 ranges, as listed in the first two columns of the following table. There are some exceptional cases, though. For these, the third column of the table makes reference to the notes on the next page.

**Table 3. Approximate Equivalents When Replacing with Members of the Eagle Range**

Capacity	Previous device	Eagle range replacement	Exceptions
1 Kb	ST24C01	M24C01	see note 2
	ST24W01	M24C01	
	ST25C01	M24C01-W	see note 2
	ST25W01	M24C01-W	
2 Kb	ST24C02	M24C02	see note 2
	ST24W02	M24C02	
	ST25C02	M24C02-W	see note 2
	ST25W02	M24C02-W	
4 Kb	ST24C04	M24C04	see notes 1 & 2
	ST24W04	M24C04	see note 1
	ST25C04	M24C04-W	see notes 1 & 2
	ST25W04	M24C04-W	see note 1
8 Kb	ST24C08	M24C08	see notes 1 & 3
	ST24W08	M24C08	see note 1
	ST25C08	M24C08-W	see notes 1 & 3
	ST25W08	M24C08-W	see note 1
16 Kb	ST24164	M24164	
	ST24C16	M24C16	see notes 1 & 3
	ST24W16	M24C16	see note 1
	ST25164	M24164-W	
	ST25C16	M24C16-W	see notes 1 & 3
	ST25W16	M24C16-W	see note 1
32 Kb	ST24E32	M24C32	
	ST25E32	M24C32-W	
64 Kb	ST24E64	M24C64	
	ST25E64	M24C64-W	

**NOTE 1: USE OF THE PROTECT ENABLE (PRE) PIN**

If, in the circuit, the PRE pin (pin 1) is always held low, the M24 family can be used as a direct replacement for the original device. If, though, the PRE pin is held high, or is allowed to vary, the replacement is not so direct, and the designer is advised to contact the ST local sales office for technical support (or to e-mail the technical support electronic mail address: [ask.memory@st.com](mailto:ask.memory@st.com)).

**NOTE 2: USE OF THE MODE (MODE) PIN FOR ACCESSING MORE THAN 4 BYTES**

If, in the circuit, the MODE pin (pin 7) is always held low, the M24 family can be used as a direct replacement for the original device. If, though, the MODE pin is held high, or is allowed to vary, the device is being used to make multibyte accesses. If no more than 4 bytes are manipulated at a single write access of any given page, then the direct replacement can still be made.

However, if multibyte write accesses of more than 4 bytes per page ever occur, the replacement is not so direct, and the designer is advised to contact the ST local sales office for technical support (or to e-mail the technical support electronic mail address: [ask.memory@st.com](mailto:ask.memory@st.com)).

**NOTE 3: USE OF THE MODE (MODE) PIN FOR WRITING MORE THAN 8 BYTES**

This exception is identical to that described in note 2, except that up to 8 bytes in any one write access are tolerated by the M24 replacement, allowing the direct replacement still to be made.

## AN995 - APPLICATION NOTE

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If you have any questions or suggestions concerning the matters raised in this document, please send them to the following electronic mail address:

*apps.eeprom@st.com*

Please remember to include your name, company, location, telephone number and fax number.

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