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The controls are capable of their respective functions as described.
This does not imply that the functions were fitted at delivery or if they are available for service use.

We reserve the right to amend or change this publication.

0.0 Overview of "@" and "&" functions

	Function	8T	Sprint 8T	8M	Sprint 8M	8MC	8N	Chapter
@ 00	Unconditional jump	(X)	X	(X)	X	X	X	1.1
@ 01	Conditional jump - equals	(X)	X	(X)	X	X	X	1.2
@ 02	Conditional jump - larger	(X)	X	(X)	X	X	X	1.2
@ 03	Conditional jump - larger/equal	(X)	X	(X)	X	X	X	1.2
@ 10	Square root	(X)	X	(X)	X	X	X	2.1
@ 15	Sine	(X)	X	(X)	X	X	X	2.2
@ 18	Arcustangens *							2.3
@ 20	Load address parameter	(X)	X	(X)	X	X	X	3.1
@ 21	Reference preparation	(X)	X	-	-	-	-	3.2
@ 22	Cutter point calculation	(X)	X	-	-	-	-	3.2
@ 23	Tool change	(X)	X	-	-	-	-	3.4
@ 24	Load actual value	(X)	X	(X)	X	X	X	3.5
@ 25	Start conditions for cycles	(X)	X	(X)	X	X	X	3.6
@ 29	Read/Load System stores	(X)	X	(X)	X	X	X	3.7
@ 30	Reference to machine actual value	(X)	X	(X)	X	X	X	4.2
@ 31	Clear buffer	(X)	X	(X)	X	X	-	4.1
@ 90	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 91	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 92	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 93	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 94	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 95	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 96	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 97	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 98	Address parameter	(X)	X	(X)	X	X	X	5.1
@ 99	Address parameter	(X)	X	(X)	X	X	X	5.1
&	Operator Aids	(X)	(X)	(X)	(X)	(X)	(X)	5.2

X Available

(X) Available, but cannot be entered from the operator's panel

* From Software 02 onwards

0.1 Introduction

This description covers all System 8 controls. The System 8 cycles are not part of the hardware but stored in the control's program memory. In order to realise the powerful System 8 cycles, it was necessary to develop a number of functions which were developed on from System 7. These functions are called up with the @ address. The purpose of this description is to describe and clarify the functions with examples, thus enabling the customer to program machine and technologically orientated cycles.

In order to understand this description a study of the programming manual 8T/Sprint 8T or 8M/Sprint 8M/8MC or 8N is a pre-requisite.

Parameter Chaining

Calculation Type	Programmed Calculation	Argument	Result found in
Addition	R01 R02	R01+R02	R01
Subtraction	R01-R02	R01-R02	R01
Multiplication	R01.R02	R01.R02	R01
Division	R01/R02	R01:R02	R01
Definition +	R01 10 R02	R01 +10	
Addition		R01+R02	R01
Definition -	R01-10-R02	R01-10	
Subtraction		R01-R02	R01

Note:
Each chain operation must be programmed as a separate block.

General

Programmed parameter chaining and programmed @ functions initiate calculation times which can be up to 10 ms per link. It is therefore necessary to ensure that the calculations be programmed approximately 10 blocks before required. If e.g. a move is executed at a suitable speed, the control can be allowed sufficient time to complete the next 10 calculations. The signal "cycles lock" also enables faster calculations (see chapter 2.2.1 section g).

In conjunction with an @ program definition, it is often necessary to transfer a parameter via the interface. See 3.5.1 (Loading the position value).

R parameter range:

a) Programmable and displayable range

Largest value: ± 99999999.

Smallest value: ± .00000001