

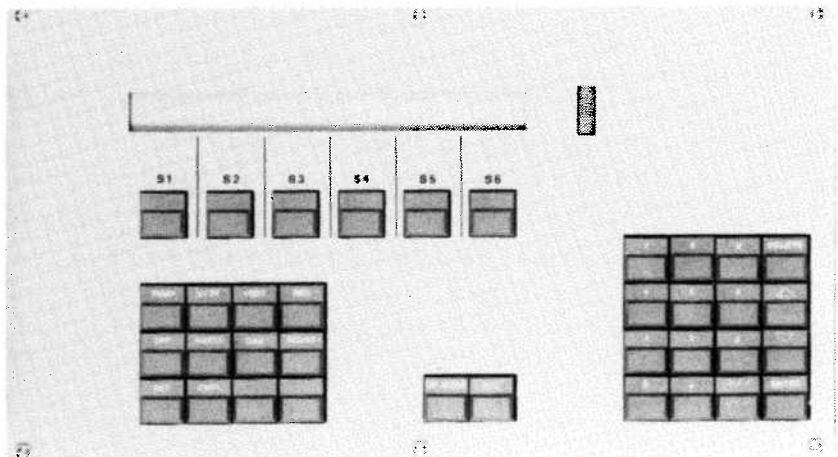
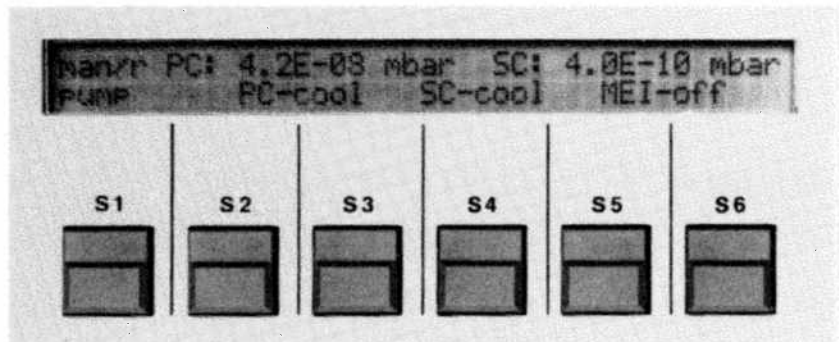
OPERATING INSTRUCTIONS

Console

CS 420

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1. INTRODUCTION

The purpose of the CS 420 console is to provide the SC 420 bus chassis with input / output capabilities.

It contains a keyboard for numerical and function-specific input plus softkeys. A two or four line LCD display is provided as readout.

2. FEATURES

- Input keyboard with max. 40 individual keys.
- Automatic repeat function for 4 individual keys.
- 6 softkeys
- LCD module, two or four lines with 40 characters per line

3. SPECIFICATION

Designation:	CS 420
	Diagram nr. BG 541 192 -S
	Drawing nr. BG 512 930 -Z
Board format:	SC 420 format
Power supply:	+5 V \pm 5% / 200 mA typical
Addressing range:	I/O page according to the setting on the MM 420
Display:	<ul style="list-style-type: none">– Two or four line LCD module with 40 characters per line– Integrated character generator with 96 alphanumeric characters– 8 freely programmable characters– Choice of top or bottom view model (refer to Section 6.1)
Keyboard:	<ul style="list-style-type: none">– Max. 40 individual keys– 4 keys with automatic repeat function, repeat frequency = 5 Hz \pm 1 Hz– SHIFT key for assigning two functions to one key– Keyboard controller element: 8279
Connector:	<ul style="list-style-type: none">– J1: Connector strip for indirect SCOTCHFLEX flat cable connections, 26 pin– J2, J3: Connector strip for indirect SCOTCHFLEX flat cable connections, 16 pin

4. DESCRIPTION

The CS 420 contains the two I/O function units KEYBOARD and DISPLAY. The connection to the bus system is made via the MM 420 multifunction module which contains the necessary interface logic.

The MD 420 mimic diagram can be connected to the CS 420.

Display: The display is available as a two or four line LCD module. It is installed in the front panel and connected to the console pc board over connector J2. The viewing angle can be adjusted on the front panel with a potentiometer.

The display module processes character data transmitted by the computer in ASCII code. The data are stored in the DISPLAY DATA RAM (DD RAM) for each place in the display and then displayed.

It is possible to generate special characters with ASCII codes 0 ... 7.

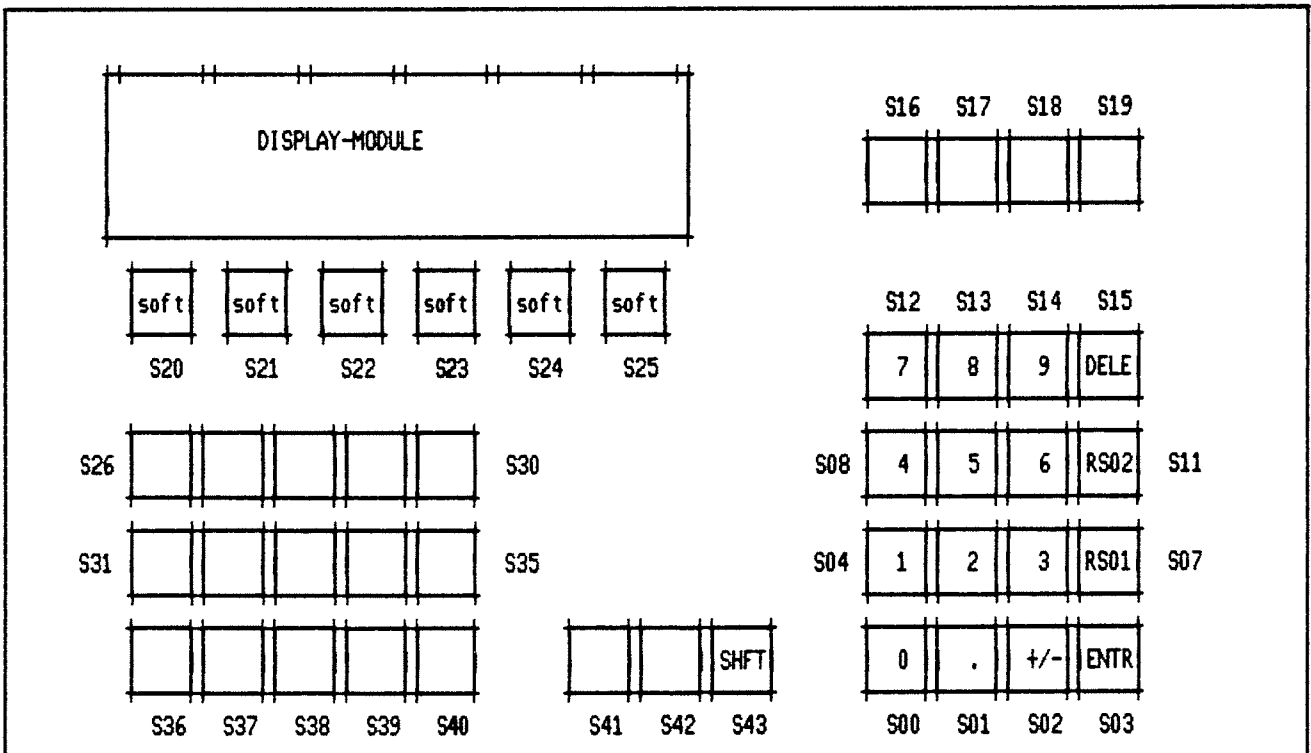
The patterns of these special characters must be loaded in the character generator RAM (CG-RAM)

Keyboard: The keyboard contains the maximum number of keys shown in Fig. 1. A particular CS 420 can be designed with any combination of this maximum number of keys.

An input made via the keys is reported to the computer with an interrupt request (KEYINT), and the code for the key is held ready for accessing in a FIFO memory. The FIFO can hold a maximum of 8 key strokes.

Note, however, that the prerequisite for an interrupt request is initialization of the interrupt controller in the MM 420.

A key pushed and held down is only counted as a single activation of that key. Exceptions to this are S16 ... S19 which have an automatic repeating function. Continuing to hold down one of these keys simulates pushing and releasing the key at a rhythm of approximately 5 Hz. Removal of jumper A on the pc board disables the automatic repeat function.



(S XX) corresponds to the switch number.

Fig. 1: Arrangement of the keys on the CS 420.

6.2 Connections

(see Appendix A: layout plan)

Refer to diagram BG 541 192 -S for pin assignment.

- CONSOLE CONNECTOR J1: Connection of the 26 pin ribbon cable connection to the MM 420 multifunction module
- DISPLAY CONNECTOR J3: Connection between the CS 420 and the LCD module
- MIMIC DIAGRAM CONNECTOR J2: Connection of the MD 420 mimic diagram

7. PROGRAMMING

(refer to the Engineering Handbook for the CS 420)

8. MAINTENANCE

8.1 Periodic maintenance: none

8.2 Troubleshooting

Symptom	Possible cause	Locating	Repair
Nothing comes on the display	<ul style="list-style-type: none"> – Defective connection between CS 420 and MM 420 – Defective connection between CS 420 and LCD module – Defective adjustment potentiometer for viewing angle – Defective LCD module – Defective CS 420 module – Defect in the MM 420 	<ul style="list-style-type: none"> Visual check of J2 on MM 420 and J1 on CS 420 Visual check of CS 420 / J3 Check the fixation for the adjustment wheel (adjustment from one stop to other) Trial exchange of LCD-module Trial exchange of CS 420 module Trial exchange of MM 420 module 	<ul style="list-style-type: none"> Adjust and tighten wheel on the potentiometer axis Replace LCD module Send CS 420 module to Balzers for repair Send MM 420 module to Balzers for repair.
Keyboard doesn't work	<ul style="list-style-type: none"> – Defective connection between the CS 420 and MM 420 – CS 420 defective – Defect in MM 420 	<ul style="list-style-type: none"> Visual check of J2 on the MM 420, and J1 on the CS 420 Trial exchange Trial exchange of MM 420, connect CS 420 and test 	<ul style="list-style-type: none"> – Send for repair – Send for repair

9. DETAILED DESCRIPTION

See Engineering Handbook CS 420

10. SPARE PARTS

			Description Teil	Item Pos.	Order No. Bestell-Nr.	S	Reference Bemerkungen
			LCD-DISPL LM 24A2C40CT, 2 x 40CH DEN		BG 512 923 -T		two line, top view
			LCD-DISPL LM 24A2C40CB, 2 x 40CH DEN		BG 512 974 -T		two line, bottom view
			LCD-DISPL LM 44A4C40CT, 4 x 40CH DEN		BG 512 922 -T		four line, top view
			LCD-DISPL LM 44A4C40CB, 4 x 40CH DEN		BG 512 975 -T		four line, bottom view
Spare Parts for / Ersatzteile zu						BALZERS	
CS 420						BG 800 195 E	

