CR23X PROMPT SHEET

This prompt sheet is intended for field use or as a reference by those familiar with CR23X programming; additional details and examples are in the CR23X Operator’s manual. Computer-assisted programming and communications are supported by Campbell Scientific’s PC208W software.

The CR23X can be interrogated or programmed via the built-in, 2-line Alphanumeric display. The [ ] key is the most important because it controls access to each of the CR23X’s 14 programming, data storage, and status areas (“star” modes). Once in a star mode, use [ A ] and [ B ] to move between entries. To enter a value, use the [ C ] through [ D ] keys, then press [ A ] to exit a star mode, key in a different star mode. To exit all star modes and begin logging, key in [ 0 ]

*Modes*

**BEGIN PROGRAMMING (logs program and logs data)**

<table>
<thead>
<tr>
<th>Key</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ENTER PROGRAM TABLE 1</td>
</tr>
<tr>
<td>1</td>
<td>01:xxxx Advance to a given Instruction location (“fast forward”)</td>
</tr>
<tr>
<td>0</td>
<td>01:x.xxx Enter Execution Interval between 0.01 and 6553.5 s. Valid entries are multiples of 1/100 (0.01) s. 1 to 100 s.</td>
</tr>
<tr>
<td>1</td>
<td>01:Px Enter a Program Instruction (select appropriate instructions from the following pages). Entering an instruction number also loads blank entries for its associated parameters. For example, if instruction 2 (differential volts) is desired, key in 2A which loads: 01:02</td>
</tr>
<tr>
<td>0</td>
<td>01:00 Reps - repeats measurements on consecutive channels and places result in consecutive input locations 02:00 Range - see option codes 03:00 First differential channel to make measurement 04:0000 First input location where measured result will be stored 05:00.0000 Multiplier 06:00.0000 Offset</td>
</tr>
<tr>
<td>0</td>
<td>Key in values for each parameter then advance to 2nd instruction in program.</td>
</tr>
</tbody>
</table>

**ENTER PROGRAM TABLE 2**

Same structure as *1. Allows use of a different Execution Interval.

**ENTER PROGRAM TABLE 3 (subroutines only)**

Same structure as *1 except no Execution Interval

**PARAMETER ENTRY TABLE**

- See CR23X manual.

**CLOCK**

(set or display CR23X time)

- [Hh]:MM:SS (displays current datalogger time)
- [Yy]: Year
- [Oo]: Julian Day of Year (1 of 2 Formats allowed):
  - Day of Year XXX (1-366) (Calendar on back)
  - MMDD (e.g., 1012 for October 12th)
- [00]:HHMM Hours Minutes

**INPUT STORAGE**

(display data values, flags, or port status. Compile program without resetting input storage, flags or ports)

06:xxxx Advance to a given Input Storage Location

**FINAL STORAGE**

(display values stored in area 1 or 2)

07:xx Select area 1 or 2 (skipped if 2 not allocated) 07:xxxxx DSP location; enter location to advance to

**MANUAL DATA DUMP**

08:xx Select Storage Area 1 or 2 (skipped if 2 not allocated)

**STORE OR LOAD PROGRAMS**

- 1x Store program x in Storage Module N
- 2x Load program x from Storage Module N
- 3x Clear program x from Storage Module N
- N = 1-8

**SECURITY**

(display or change)

- 02:xxxx Lock *4, *5 & *6 except display

**STORAGE MODULE COMMANDS**

- See Storage Module manual

**MEMORY ALLOCATIONS**

/display or change/

01:xxxx Input Storage Locations
02:xxxx Intermediate Storage Locations
03:x Final Storage Locations - Area 2
04:xxxx Final Storage Locations - Area 1
05:xxxx.x Memory allocated for program (bytes)
06:xxxx.x Remaining program memory (bytes)
07: Program bytes Available
08: Label bytes used
09: Label bytes free

**GENERAL KEYSTROKES**

- [C] Change value; Index a parameter; Change sign of a number
- [D] Enter decimal point, or
- [E] Enter Help. Help is available when you see?
- Use [ A ] to advance through help
- [B] Back up

**STATUS/ON-BOARD FIRMWARE**

01:xxxxx Program signature
02:xxxxx Operating System signature
03:xxxxx K bytes memory: Flash + SRAM
04:xx No. of Watchdog (E08) Errors (Key 88 to reset)
05:xx No. of Skipped Scans Errors (Key 88 to reset)
06:xxxx Operating System Version number
07:xxxx Operating System Revision number
08:xxxxx Lithium battery voltage
09:xx Low 12 V batt. detect counter (Key 88 to reset)
10:xx Flash memory error counter (Key 88 to reset)
11:xxxx Flash memory time to erase, seconds
12:xx No. of Low 5 V Errors (Key 88 to reset)
13:xxxx Execution time of Table 1
14:xxxx Panel Temperature in °C
15:xx Co-processor revision
16:xx Co-processor status
17:xx CPLD revision

**STORE PROGRAM**

1 Print program (ASCII)
2 Load program (ASCII), '0 compile
2 Load program (ASCII), '6 compile
6 Store program in Flash
7 Load program from Flash
7N Store/Load/Clear program in Storage Module N

**DISPLAY**

11 -- Stop Program
12 Set Initial Baud/Set RS-232 Power
13 Set Compile Option
null
ERROR CODES

3 -- Program Table full
4 -- Intermediate Storage full
5 -- Final Storage Area 2 not allocated
8 -- CR23X was reset by watchdog timer
9 -- Insufficient Input Storage
10 -- Low battery voltage
11 -- Attempt to allocate unavailable storage
12 -- Duplicate "4 ID
13 -- Low External 5V Supply
20 -- Subroutine encountered before END of previous subroutine
21 -- END without IF, LOOP, or SUBROUTINE
22 -- Missing END
23 -- Non-existent SUBROUTINE
24 -- ELSE in SUBROUTINE without IF
25 -- ELSE without IF
26 -- EXIT LOOP without LOOP
27 -- IF CASE without BEGIN CASE
30 -- Ifs and/or LOOPS nested too deep
31 -- SUBROUTINES nested too deep
32 -- Instruction 3 and interrupt subroutine use same port
33 -- Cannot use control port 6 as counter with Instruction 15 or SDM/SDI-12 instructions
40 -- Instruction does not exist
41 -- Incorrect Execution Interval
60 -- Insufficient Input Storage
61 -- Burst Measurement Scan Rate too Short
62 -- Illegal Parameter 1 for FFT Instruction
68 -- Insufficient P68/P63 after P118
92 -- Interval for P92 too large
101 -- TGT1 Did Not Respond
102 -- Invalid TGT1 Parameter
107 -- Second CSA3 instruction not nested

*D Mode Errors
94 -- Program storage area full
95 -- Flash program does not exist
96 -- Addressed device not connected
97 -- Data not received within 30 seconds
98 -- Uncorrectable errors detected
99 -- Wrong file type or editor error

DAY OF YEAR CALENDAR

|   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| JAN| 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
| FEB| 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  |     |
| MAR| 60  | 61  | 62  | 63  | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  |
| APR| 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| MAY| 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 |
| JUN| 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 |
| JUL| 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 |
| SEP| 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 |
| OCT| 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 |
| NOV| 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 |

Add 1 to unshaded values during leap years.

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