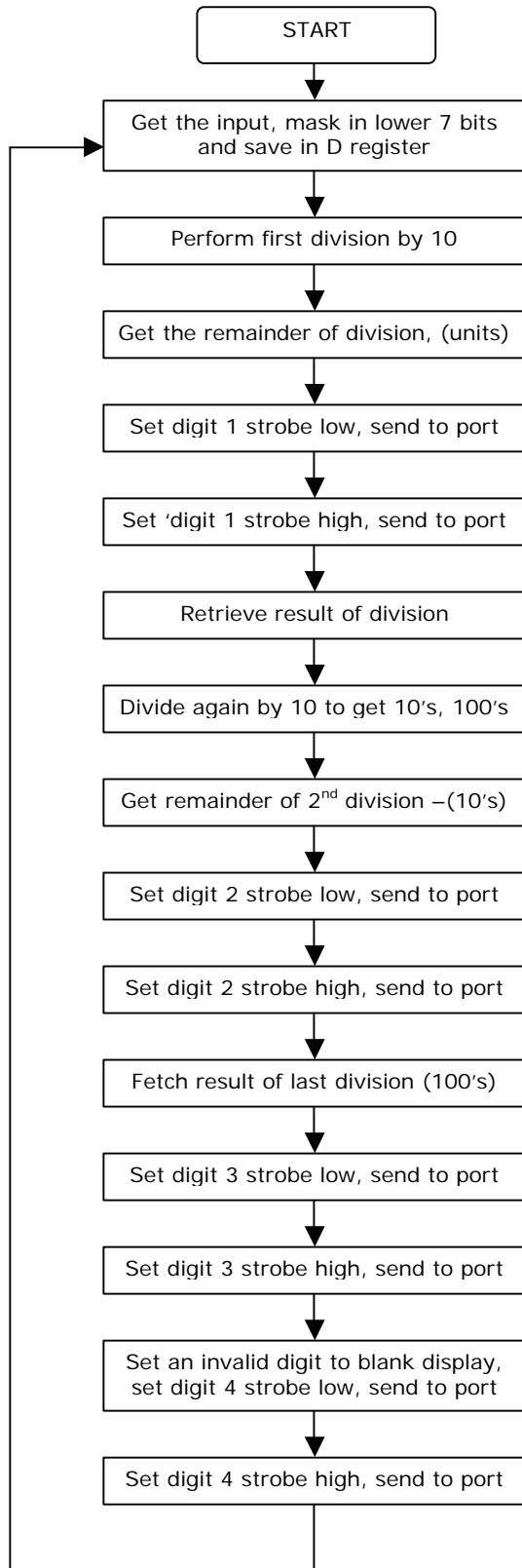


ANALOGUE & DIGITAL CONTROL - 3

| | | | |
|--------------|--|------------|-------|
| PROGRAM: | Digital Voltmeter | IP MODULE: | DADC |
| DESCRIPTION: | Measures voltages from the AD input module, displays from 0.01 to 2.55v. | OP MODULE: | Q4DL |
| | | CPU SPEED: | 1 KHz |

The input voltage is read in as an 7-bit binary value, then divided by 10 twice to convert it to BCD bytes for display on the 4 digit latched display module.



| ADDR | INSTRUCTION | CODE |
|------|--------------|----------|
| 00 | IN A, (0xFF) | DB FF |
| 02 | AND 0x7F | E6 7F |
| 04 | LD D,A | 57 |
| 05 | CALL DIV10 | CD E0 00 |
| 08 | LD A,D | 7A |
| 09 | OR 0xE0 | F6 E0 |
| 0B | OUT (0xFF),A | D3 FF |
| 0D | OR 0x10 | F6 10 |
| 0F | OUT (0xFF),A | D3 FF |
| 11 | LD D,E | 53 |
| 12 | CALL DIV10 | CD E0 00 |
| 15 | LD A,D | 7A |
| 16 | OR 0xD0 | F6 D0 |
| 18 | OUT (0xFF),A | D3 FF |
| 1A | OR 0x20 | F6 20 |
| 1C | OUT (0xFF),A | D3 FF |
| 1E | LD A,E | 7B |
| 1F | OR 0xB0 | F6 B0 |
| 21 | OUT (0xFF),A | D3 FF |
| 23 | OR 0x40 | F6 40 |
| 25 | OUT (0xFF),A | D3 FF |
| 27 | LD A,0x7F | 3E 7F |
| 29 | OUT (0xFF),A | D3 FF |
| 2B | OR 0x80 | F6 80 |
| 2D | OUT (0xFF),A | D3 FF |
| 2F | JR -49 | 18 CF |

ANALOGUE & DIGITAL CONTROL - 3

PROGRAM: Digital Voltmeter
 DESCRIPTION: Measures voltages from the AD input module, displays from 0.01 to 2.55v.

IP MODULE: DADC
 OP MODULE: Q4DL
 CPU SPEED: 1 KHz

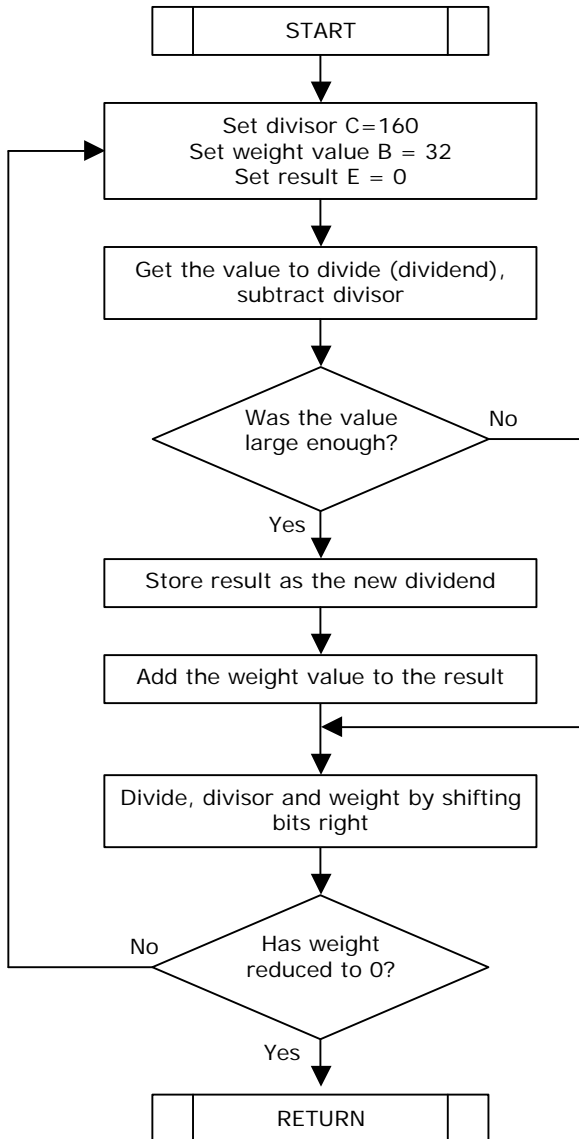
DIVIDE by 10 SUBROUTINE

This section divides the value in the D register by 10.

At the end of the subroutine,

E = Result of division by 10

D = Remainder



| ADDR | INSTRUCTION | CODE |
|------|-------------|-------|
| E0 | LD B, 0x10 | 06 10 |
| E2 | LD C, 0xA0 | 0E A0 |
| E4 | LD E,0 | 1E 00 |
| E6 | LD A,D | 7A |
| E7 | SUB A,C | 91 |
| E8 | JR C +4 | 38 04 |
| EA | LD D,A | 57 |
| EB | LD A,E | 7B |
| EC | ADD A,B | 80 |
| ED | LD E,A | 5F |
| EE | RRC C | CB 09 |
| F0 | RRC B | CB 08 |
| F2 | JR NC -12 | 30 F2 |
| F4 | RET | C9 |