## Highlights of LCD information for Week 6

(from OPTREX documentation)

- page 10; DMC-50448
- page 11; pinout

**RS**: Register Select

• page 14-15; internal registers

direct access; IR and DR

IR: RS=0; DR: RS=1

indirect access; DDRAM, CGRAM

**AC**: Address Counter; where to read/write

IR mostly for writing; reading gets BF(7), AC(0-6)

Qwikflash  $R/\bar{W}$  tied LOW; i.e. WRITE ONLY!

• page 18-19; two line display examples

80 chars x 8 bits

display shift; both lines shift independently

- page 22 CGRAM, CGROM
- page 28-29; character map
- page 33; four bit initiallization
- page 34-40; instructions
- ports D and E

schematic misleading; bidirectional

PORTx vs. LATx review

- page 47-49; signal timing; enable toggle LHL for each nibble
- TBLRD vs. LFSR