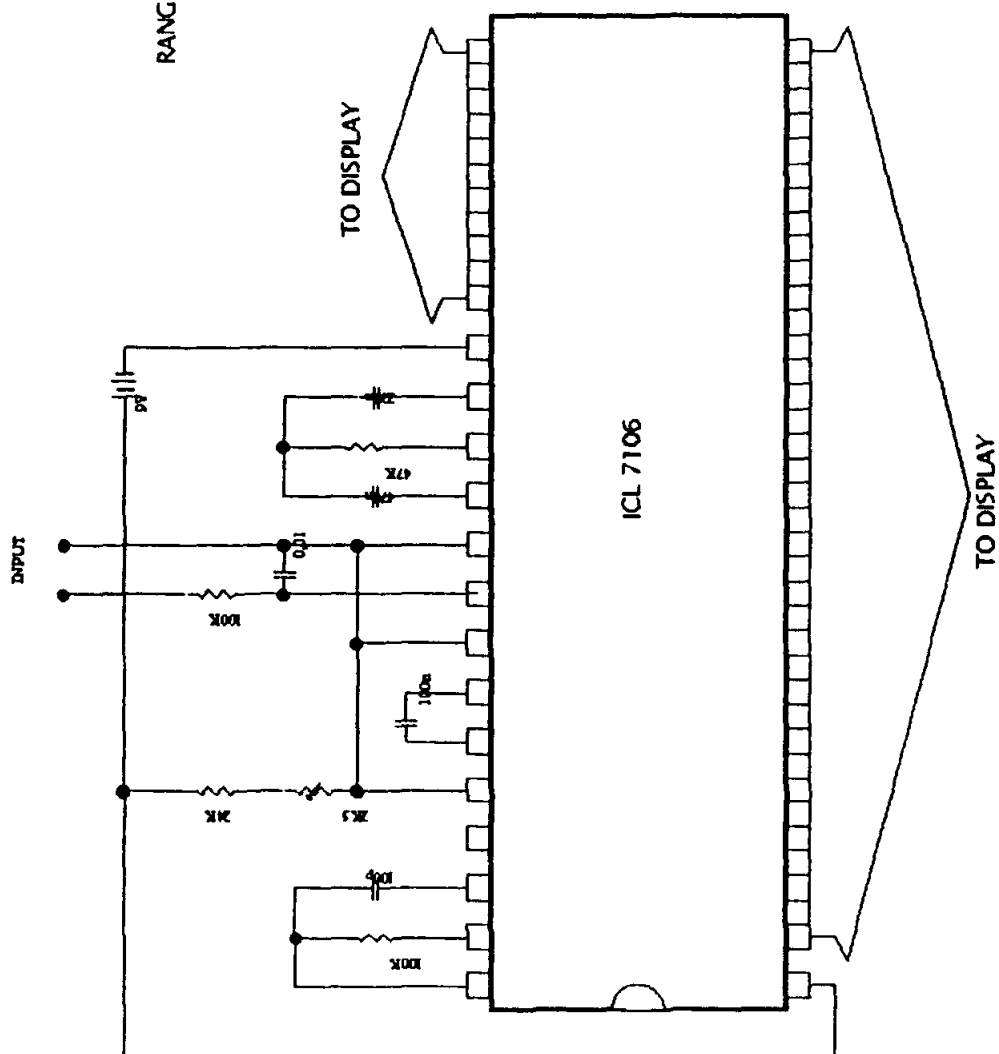
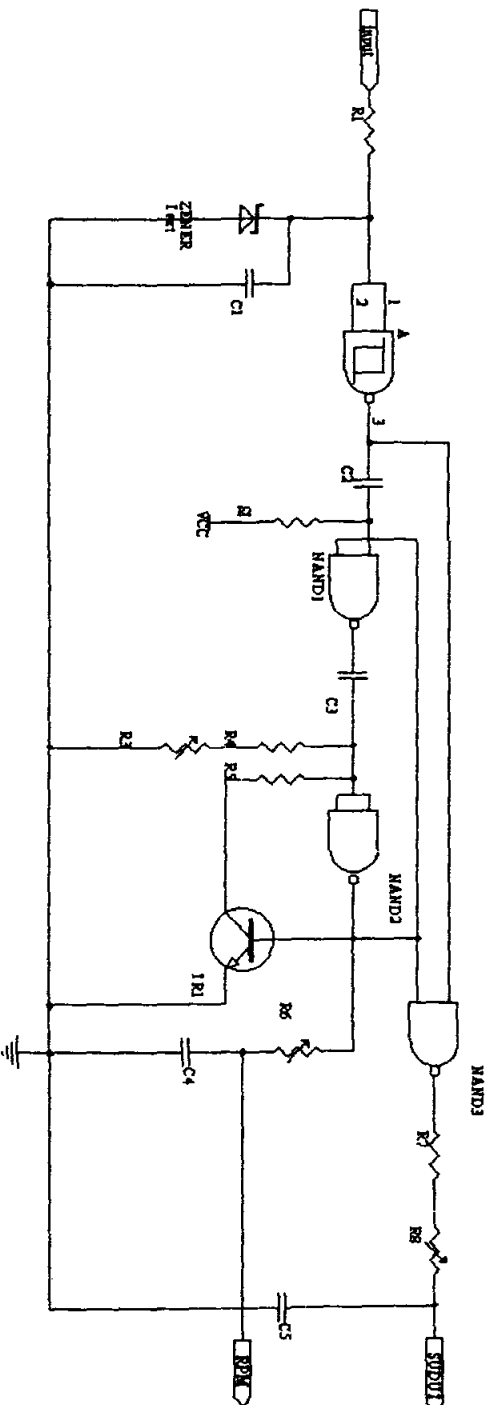


LAMPIRAN

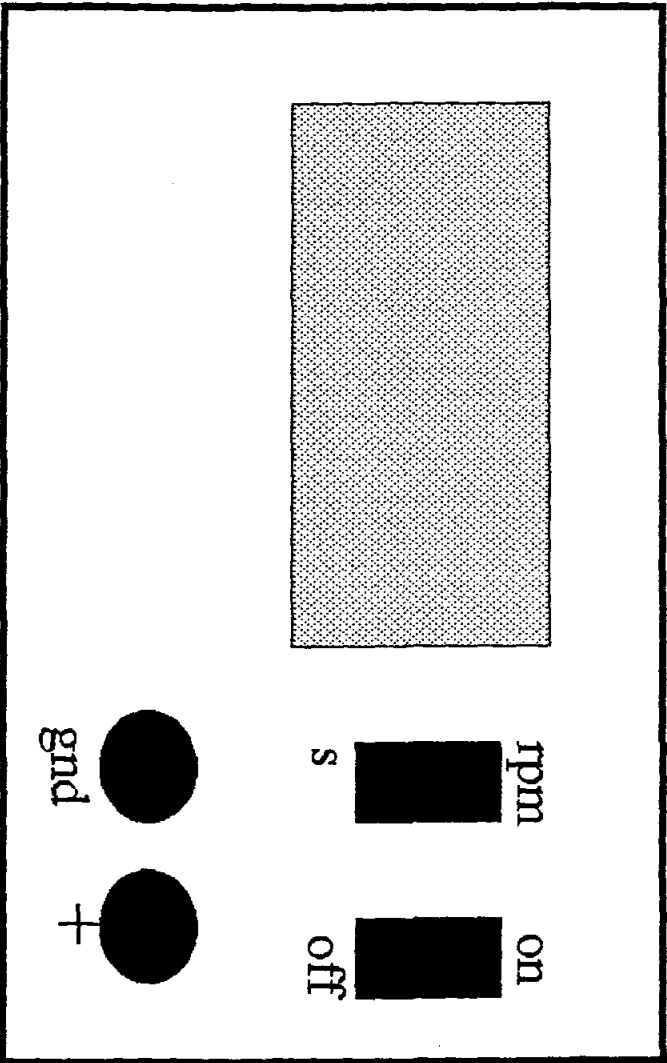
RANGKAIAN PENGGERAK DISPLAY CRYSTAL



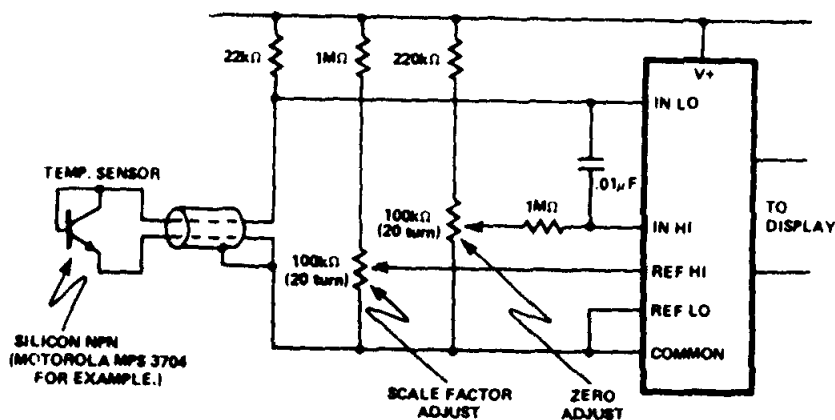


RANGKAIAN PEMBENTUK PULSA

THE RANGELAND PERMITTING POLISA		
State	Number	Expiration
A		
Date	1-1-86-2000	Expiry of
State	CALIFORNIA	Owner or
Permit	0000000000	Activity



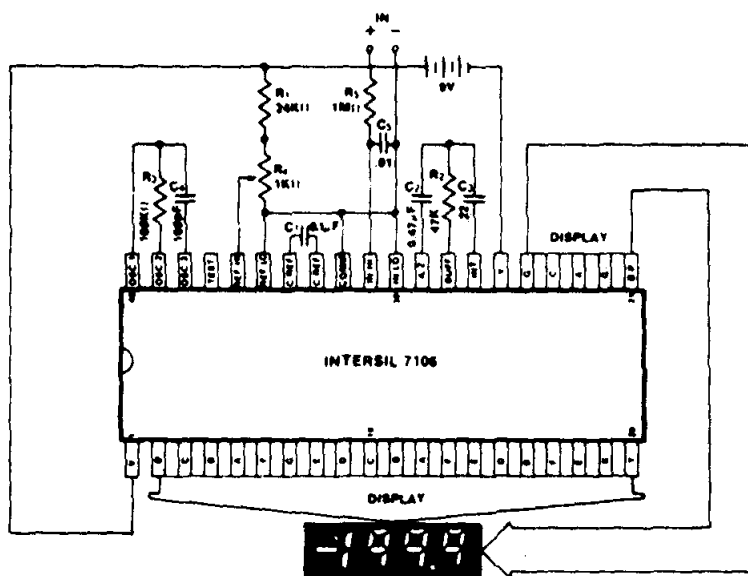
GAMBAR PANEL TAMPAK DEPAN



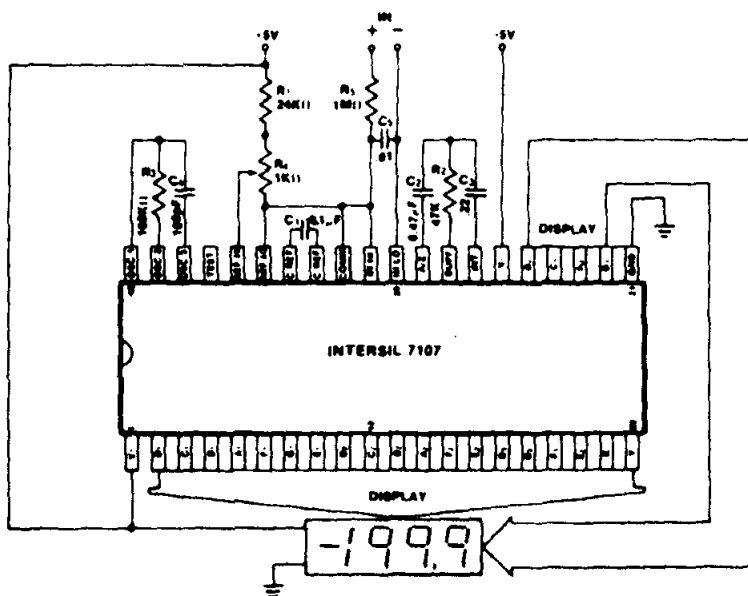
(* REQUIRES SOME MODIFICATION TO THE KIT)

Figure 9: Digital Thermometer*

APPENDIX 1—EVALUATION KIT SCHEMATICS



ICL7106 WITH LIQUID CRYSTAL DISPLAY



ICL7107 WITH LED DISPLAY

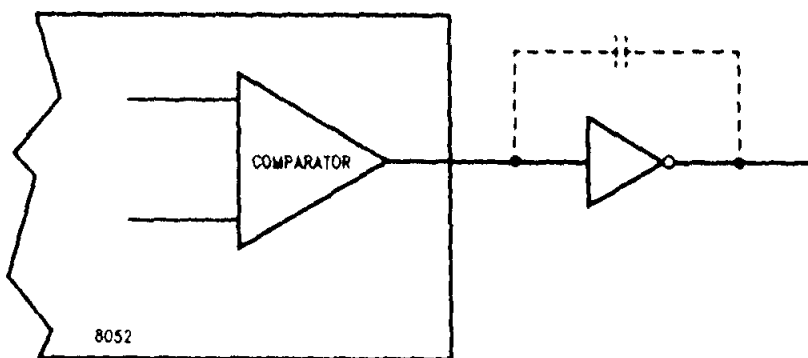


Figure 3

Low Cost Digital Panel Meter Designs

Including Complete Instruction for Intersil's LCD and LED Kits

Intersil's 7106 and 7107 are the first ICs to contain all the active circuitry for a $3\frac{1}{2}$ digit panel meter on a single chip. The 7106 is designed to interface with a liquid crystal display (LCD) while the 7107 is intended for light-emitting diode (LED) displays. In addition to a precision dual slope converter, both circuits contain BCD to seven segment decoders, display drivers, a clock and a reference. To build a high performance panel meter (with auto zero and auto polarity features) it is only necessary to add display, 4 resistors, 4 capacitors, and an input filter if required (Figure 1 and 2).

Note on the ICL7136: The 7136 is an ultra-low-power version of the 7106. Except for the passive component values as shown in Figure 3 and Table 1, all references in this document to the ICL7106 also apply to the ICL7136.

MAJOR ADVANTAGES OF 7106 AND 7107

Until recently, the make or buy decision for any A-to-D system was dominated by the engineering costs. Even a simple panel meter, built from off-the-shelf digital and linear ICs, required at least six months of engineering effort for completion. However, the advent of truly single chip panel meter functions (Intersil's 7106 and 7107) has reduced the design effort on the part of the user to zero. The make or buy decision becomes a simple question of dollars and cents.

At the time of writing (1982), a $3\frac{1}{2}$ digit LED display panel meter can be built for \$18 in production (5,000) quantities. This figure includes labor at \$3 per hour with 300% overhead. The cost breakdown is as follows:

(Prices are subject to change)

ICL7107 (@5000 pcs)	\$5.95
LEDs (4)	3.00
Capacitors (5)	.58
Resistors (4)	.12
Potentiometer	.60
Circuit Board	1.00
Misc Hardware	.75
TOTAL COMPONENTS	\$12.00
Labor	6.00
$\frac{1}{2}$ hour at \$3/hour, 300% overhead)	
TOTAL COST	\$18.00
including assembly and test	

$3\frac{1}{2}$ digit LCD panel meter, using the 7106, is \$3 to \$4 more expensive. This is due to the greater cost of the display.

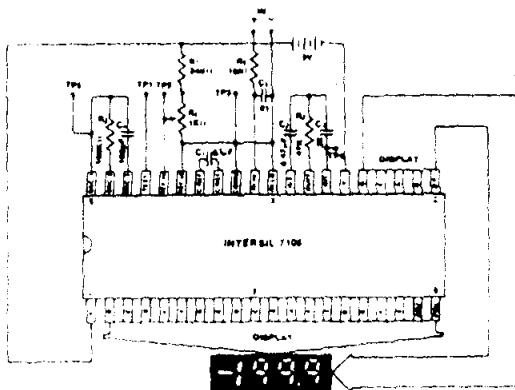


Figure 1: LCD Digital Panel Meter Using ICL7106

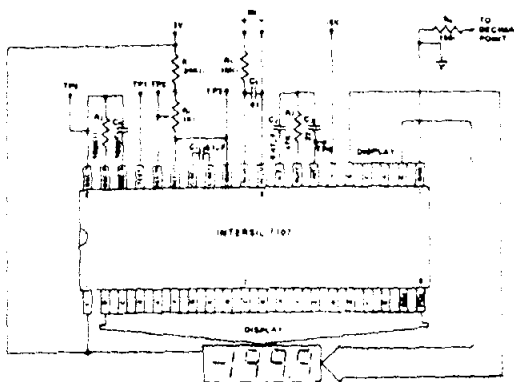
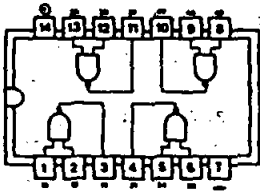


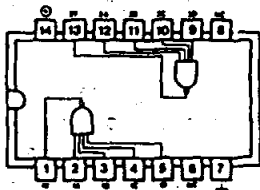
Figure 2: LED Digital Panel Meter Using ICL7107

Applying A/D converters
Low-cost panel meters



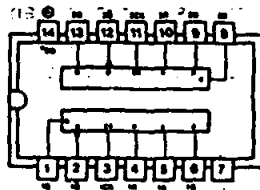
4011 GERBANG NAND 2-JALANMASUK BEREMPAT

$$Y = \overline{A \cdot B}$$



4012 GERBANG NAND 4-JALANMASUK BERDUA

$$Y = \overline{A \cdot B \cdot C \cdot D}$$



4013 GULANG-GULING (FLIP-FLOP) D BERDUA

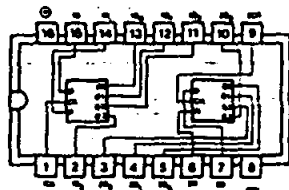
VDD	5	10	15	V
Max. Clock Frequency (MOTOROLA)	4	10	14	MHz

Tabel kebenaran (Motorola)

INPUTS				OUTPUTS	
CLOCK	DATA	RESET	SET	Q	Q̄
	0	0	0	0	1
	1	0	0	1	0
	X	0	0	Q	Q̄
X	X	1	0	0	1
X	X	0	1	1	0
X	X	1	1	1	1

No change

X = sebarang



4015 REGISTER GESER STATIS 4-BIT BERDUA
(Konvertor deret-ke-jajar)

Informasi yang ada di jalanmasuk Data deret (D) digeserkan ke posisi register ke satu (Q_0), dan semua data di dalam register digeserkan satu posisi ke kanan pada transisi RENDAH-ke-TINGGI denyut lonceng (CK). TINGGI pada jalanmasuk Reset (R) membersihkan register dan memaksakan jalankeluar-jalankeluar ($Q_0 \dots Q_3$) menjadi RENDAH, tak bergantung pada jalanmasuk Clock atau Data.

Tabel kebenaran

CK	D	R	Q0	Qn
	0	0	0	Qn-1
	1	0	1	Qn-1
	X	0	Q0	Qn (no change)
X	X	1	0	0

X = sebarang

BIODATA



NAMA : HERYBERTUS KRISTIANTO
N R P : 5103094025
N I R M : 94.7.003.31073. 06032
TEMPAT/TGL LAHIR : NGAWI, 22 OKTOBER 1975
AGAMA : KATOLIK
ALAMAT : JL RAYA SINE No 16 NGAWI 63264

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Tahun 1991 : Lulus dari SMPN I Sine Ngawi
Tahun 1994 : Lulus dari SMAN I Sine Ngawi
Tahun 2000 : Lulus dari Universitas Katolik Widya Mandala Surabaya