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DIGITALKER™ Speech Output

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FEATURES

- HIGH QUALITY COMPUTER-CONTROLLED SPEECH
- VOCABULARY CONTAINING 274 WORDS
- POWER AMPLIFIER FOR DIRECT LOUDSPEAKER DRIVE
- LINE LEVEL OUTPUT FOR EXTERNAL AMPLIFIER
- 128 WORD FIFO BUFFER FOR EASE OF APPLICATION

APPLICATIONS

- OPERATOR CONSOLES
- PROCESS CONTROL SYSTEMS
- ALARM SYSTEMS

GENERAL DESCRIPTION

The Model 3271 is a single-width speech synthesis CAMAC module. It includes a speech processor and associated speech ROMs for word "storage". When used with an external loudspeaker, it provides a system which generates high quality speech with natural inflection and emphasis.

OPERATION

The DIGITALKER vocabulary contains 274 words, including tones, periods of silence, numbers and letters of the alphabet. A word is selected by writing the associated 9-bit data pattern. For ease of use, a 128 data word buffer is provided. The words are spoken in sequence and the LAM status is set when the buffer is empty AND the last word has been spoken.

INTERFACE

The front-panel contains two phono connectors (RCA-type), one for direct connection to a 4 to 8 ohm loudspeaker and one for line-level signals to an external amplifier. A volume control is also included on the front panel for control of the loudspeaker-level signal.

A test pushbutton is provided to generate a "This is DIGITALKER" test signal. Speaker volume can be selected and the "AUDIO" LED flashes as speech is produced.

FUNCTION CODES

Command	Q	Description
F(1)-A(15) RD2	1	Reads the module identifying number.
F(8)-A(15) TLM	LR	Tests if a LAM request is present.
F(9)-A(0) CL1	1	Clears the FIFO memory.
F(10)-A(0) CLM	1	Clears the Buffer Empty LAM status.
F(16)-A(0) WT1	BF	Writes the "word" register FIFO and clears the Buffer Empty LAM status.
F(24)-A(0) DIS	1	Disables the LAM request.
F(26)-A(0) ENB	1	Enables the LAM request.
F(27)-A(0) TST	BE	Tests the buffer status (Q = 1 if buffer is empty; Q = 0 otherwise).
Z CZ	0	Clears FIFO, disables LAM request and speaks test signal "This is DIGITALKER".

Notes: 1. X = 1 for all valid addressed commands.
 2. If buffer is full, data is not entered by F(16) command and Q = 0.



VOCABULARY LIST

A abort add adjust again alarm alert all ampere and ask assistance at attention	eighty eleven emergency end enter entry equal er error evacuate exit	inches incorrect increase intruder is it	on one onward open operator or out over	smoke south space speed star start station stop switch system
B break button buy	F fail failure farad fast faster feet fifteen fifth fifty fire first five floor flow forty forward four fourteen from fuel	J just	P parenthesis pass per percent pica place please plus point pound press pressure pulses	T ten test -th (3) than thank the third thirteen thirty this thousand three total time turn try twelve twenty two
C call cancel case caution cent centi change check circuit clear close comma complete connect continue control copy correct	G gallon gas get go going gram great greater	L left less lesser level limit load lock low lower	Q quarter	total time turn try twelve twenty two
D danger date day decrease degree deposit dial divide dollar door down	H half have hello help hertz high higher hold hour hundred	M mark meg mega meter micro mile milli million minus minute more move	R range rate re reach ready receive record replace reverse right room	total time turn try twelve twenty two
E east -ed (1) eight eighteen	I in	N nano near need next nine nineteen ninety no normal north not notice number	S -s (2) safe second secure select send service set seven seventeen seventy side six sixteen sixty slow slower	total time turn try twelve twenty two
Notes:	1. The -ed suffix is added, as "ask(ed)". 2. Words are made plural, as "connect(s)". 3. The -th suffix is added, as "six(th)".	4. The -uth suffix is added, as "twenty(uth)". 5. Two tones are available, 80 Hz and 400 Hz. 6. Periods of silence can be programmed, 20 msec to 320 msec.		

POWER REQUIREMENTS

- + 6 volts — 540 mA
- 6 volts — 10 mA
- +24 volts — 100 mA

ORDERING INFORMATION

- Model 3271-Z1A — Voice Module
- Accessories — Model 5220-Z1A Loudspeaker with 6 foot cable (included)

Weight: .45 kg. (1 lb.)

VOCABULARY LIST

<u>WORD</u>	<u>ADRS (DECIMAL)</u>	<u>WORD</u>	<u>ADRS (DECIMAL)</u>	<u>WORD</u>	<u>ADRS (DECIMAL)</u>
A	032	E	036	H	039
abort	256	east	286	half	312
add	257	ed (1)	287-90	have	090
adjust	258	eight	008	hello	313
again	058	eighteen	018	help	314
alarm	259	eighty	026	hertz	315
alert	260	eleven	011	high	091
all	261	emergency	291	higher	092
ampere	059	end	292	hold	316
and	060	enter	293	hour	093
ask	262	entry	294	hundred	028
assistance	263	equal	080		
at	061	er	2954	I	040
attention	264	error	081	in	094
		evacuate	296	inches	095
B	033	exit	297	incorrect	317
break	265	exit	297	increase	318
button	266			intruder	319
buy	267			is	096
		F	037	it	097
C	034	fail	298		
call	268	failure	299	J	041
cancel	062	farad	300	just	320
case	063	fast	301		
caution	269	faster	302	K	042
cent	064	feet	082	key	321
centi	072	fifteen	015	kilo	098
change	270	fifth	303		
check	073	fifty	023	L	043
circuit	271	fire	304	left	099
clear	272	first	305	less	100
close	273	five	005	lesser	101
comma	074	floor	306	level	322
complete	274	flow	083	limit	102
connect	275	forty	022	load	323
continue	276	forward	307	lock	324
control	075	four	004	low	103
copy	277	fourteen	014	lower	104
correct	278	from	308		
		fuel	084	M	044
D	035			mark	105
danger	076	G	038	meg	325
date	279	gallon	085	mega	326
day	280	gas	309	meter	106
decrease	281	get	310	micro	327
degree	077	go	086	mile	107
deposit	282	going	311	mili	108
dial	283	gram	087	million	030
divide	284	great	088	minus	109
dollar	078	greater	089	minute	110
door	285			more	328
down	079			move	329

<u>WORD</u>	<u>ADRS</u> <u>(DECIMAL)</u>	<u>WORD</u>	<u>ADRS</u> <u>(DECIMAL)</u>	<u>WORD</u>	<u>ADRS</u> <u>(DECIMAL)</u>
M	045	R	049	T	051
nano	330	range	350	ten	010
near	111	rate	125	test	370
need	331	re	126	th (2)	371
next	332	reach	351	than	137
nine	009	ready	127	thank	372
nineteen	019	receive	352	the	138
ninety	027	record	353	third	373
no	333	replace	354	thirteen	013
normal	334	reverse	355	thirty	021
north	335	right	128	this	374
not	336	room	356	thousand	029
notice	337			three	003
number	112	S	050	total	375
		SS (4)	129	time	139
O	046	safe	357	turn	376
of	113	second	130	try	140
off	114	secure	358	twelve	012
ohms	338	select	359	twenty	020
on	115	send	360	two	002
one	001	service	361		
onward	339	set	131	U	052
open	340	seven	007	up	141
operator	341	seventeen	017	use	377
or	342	seventy	025	uth (3)	378
out	116	side	362		
over	117	six	006	V	053
		sixteen	016	volt	142
P	047	sixty	024		
parenthesis	118	slow	363	W	054
pass	343	slower	364	waiting	379
per	344	smoke	365	warning	380
percent	119	south	366	water	381
pica	345	space	132	weight	143
place	346	speed	133	west	382
please	120	star	134	which	383
plus	121	start	135	window	384
point	122	station	367		
pound	123	stop	136	X	055
press	347	switch	368		
pressure	348	system	369	Y	056
pulses	124			yes	385
Q	048			Z	057
quarter	349			zero	031
				zone	386

(NOTE: (1) to (4) indicate word endings (SS for plural, etc.).

Model 3271-21A

Tones and Silences:

TONE - 400 Hz	065	SILENCE -	20 ms	067
TONE - 80 Hz	066	SILENCE -	40 ms	068
		SILENCE -	80 ms	069
		SILENCE -	160 ms	070
		SILENCE -	320 ms	071

The addresses for the numbers, 0 to 9 are:

ZERO	031	FIVE	005
ONE	001	SIX	006
TWO	002	SEVEN	007
THREE	003	EIGHT	008
FOUR	004	NINE	009

The addresses for spelling are

A	032	G	038	M	044	S	050	Y	056
B	033	H	039	N	045	T	051	Z	057
C	034	I	040	O	046	U	052		
D	035	J	041	P	047	V	053		
E	036	K	042	Q	048	W	054		
F	037	L	043	R	049	X	055		

Suffixes:

1. Use of **-ED** suffix options:

031 words ending in T or D	033 all other words
032 words ending in T or D	034 soft ending, as "ask(ed)"

2. **TH** suffix added to words as "six (th)".

3. **UTH** suffix added to words as "twenty (uth)".

4. Makes words plural as "connect(s)".

5. Address 000 speaks "THIS IS DIGITALKER".

6. Addresses shown assume 9 bits; the lower 8 bits select the word within the 2-ROM set. The MSB, when true, selects ROM set SSR5 and SSR6. Address 000-143 are valid for ROM set SSR1 and SSR2 and 256-386 are valid for SSR5 and SSR6 (274 "words" TOTAL).

STRAP OPTION

A strap option (See Fig. 1) is provided to disable the 3271 from speaking "This is DIGITALKER" during Dataway Z operations. With the strap in the "B" position the option is disabled.

(REAR VIEW)

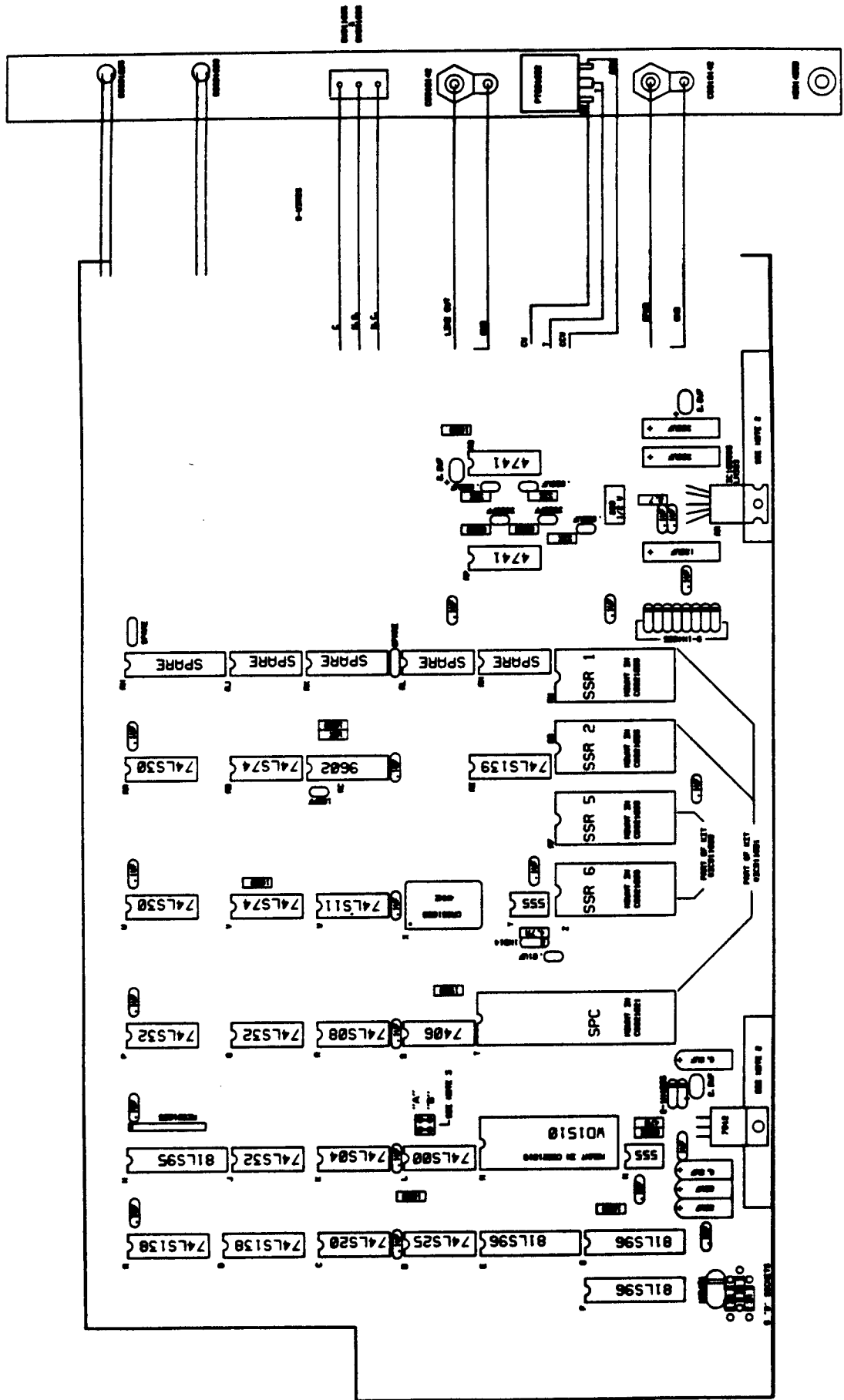


Figure 1 - Component Layout