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Model 64C3

6U VME
MULTI-FUNCTION I/O

Functions/Features

- Discrete, TTL, A/D, D/A, Differential
- MIL-STD-1553, CANBus, ARINC 429/575 & RS232/422/485
- Encoder/Counter, RTD, Strain Gage
- Synchro/Resolver/LVDT/RVDT Measurement and Simulation
- Single Slot 6U VME with up to 96 I/O Channels
- VME Bus and/or Dual Gigabit Ethernet Interfaces
- Master VME Bus capability
- Automatic Background Bit (module-dependant)
- Front and/or Rear I/O Support
- Designed for Commercial and Rugged applications
- Software Support Kit(s) and Driver(s) are available

Conduction-Cooled

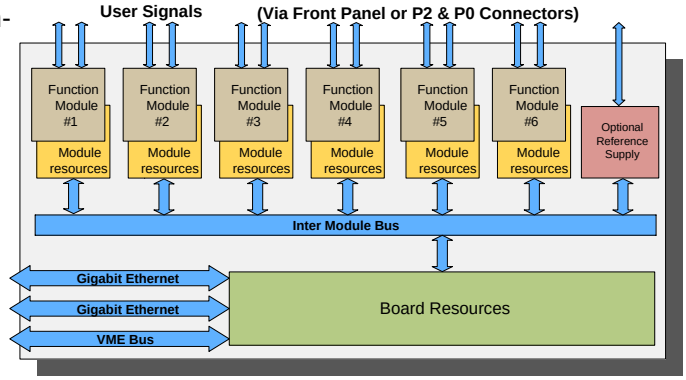


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Description

The 64C3 is a single slot, 6U VME, low-power/high-performance, multi-function I/O board. Six I/O module slots enable integrators to mix and match a variety of I/O and communication functions. These functions include Digital I/O (Discrete, TTL or Differential), Analog I/O (A/D, D/A, RTD, Strain Gage), Motion Control and Sensor Interfaces (Synchro/Resolver/LVDT/RVDT Measurement and Simulation, Encoder/Counter) and Communication Interfaces (synchronous/asynchronous RS232/422/485, MIL-STD-1553, CANBus and ARINC 429/575). Configured with up to six modules, system integrators can confidently manage and monitor a host of sensor interfacing requirements using NAI's flexible, leading-edge, fully programmable and continuous background built-in-test (BIT) enabled function modules.



The 64C3 multi-function I/O board and full complement of module API libraries and drivers are ideally suited for a multitude of commercial or rugged, embedded I/O systems. The 64C3 with dual Gig-E now includes Master VME Bus capability for the potential of direct Ethernet data collection and control from/to other NAI VME high-density, multi-function I/O boards. This provides a complete, expandable, low power/high performance, programmable solution for sensor and communication data acquisition and distribution. All I/O sensor data is available on the VME Bus or Gigabit Ethernet.

Advantages of using the 64C3 for board or system-level solutions:

- Sensor interface data available for immediate use by an external host system processor via VME or Gig-E
- Direct Gig-E "Master" data acquisition and control from multiple NAI I/O 'slave' cards within a VME chassis
- Extensive data acquisition and control without an SBC, in sensor measurement and simulation systems

General Board Specification

●**Power** – +5VDC ● **Operating Temp** – 0º C to 70º C or -40º C to 85º C ● **Size** – 233mm x 20mm x 160mm (6U)

Available Function Modules

(GEN3 Platforms)

Note 1 – Indicates wide selection (See part number in Operations Manual)
Note 2 – Contact factory for availability
Note 3 – Additional channels available from front panel on certain platforms

A/D Converter	**Module**	**Channels**	**Input Scaling**	**Resolution**	**Accuracy (±)**	**Sampling (programmable)**
	C1	10	±1.25,2.5,5 or 10 VDC	16-bit	0.05% FS	200 KHz max
	C2	10	±5,10,20 or 40 VDC	16-bit	0.1% FS	200 KHz max
	C3	10	0-25 mA	16-bit	0.1% FS	200 KHz max
	C4	10	±6.25,12.5,25 or 50 VDC	16-bit	0.1% FS	200 KHz max
	CA	10	(Channels 1-6 are C2 type and Channels 7-10 are C3 type)			
D/A Converter	**Module**	**Channels**	**Output Range**	**Resolution**	**Accuracy (±)**	**Settling time**
	F1	10	±10 or 0-10 VDC	16-bit	0.05% FS	15µs max
	F3	10	±5 or 0-5 VDC	16-bit	0.05% FS	10µs max
	F5	4	±25 or 0-25 VDC	16-bit	0.05% FS	10µs max
	J3	10	±1.25 or 0-1.25 VDC	16-bit	0.05% FS	10µs max
	J5	10	±2.5 or 0-2.5 VDC	16-bit	0.05% FS	10µs max
	J8	4	±20 to ±100 VDC	16-bit	0.15% FS	350µs max
Thermocouple	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy (±)**	**Thermocouple Interface**
	G3	6	4.17 – 470 Hz	24-bit	0.75 – 2.0 °C	NIST J,K,T,E,N,B,R,S & ±100 mV
RTD	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy**	**Interface**
	G4	6	16.7 Hz/channel	16-bit	(±) 0.05% FS	2, 3 or 4 wire
Strain Gage	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy**	**Interface**
	G5[2]	4	4.7 Hz – 4.8 KHz	16-bit	(±) 0.1% FS	Conventional 4-Arm Bridge
Encoder/Counter	**Module**	**Channels**	**Signal Voltage**	**Resolution**	**Modes**	
	E7	4	RS422 / 24 VDC	32-bit	Encoder (SSI, A-Quad-B), Counter (up/down)	
L(R)VDT/D	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Interface**
	L[1]	4	360 Hz to 20 KHz	16-bit	(±) 0.025% FS 2 or 3/4 wire	
SYN(RSL)/D	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Tracking Rate**
	S[1]	4	50 Hz to 20 KHz	16-bit	(±)1 arc-min	190 RPS
D/SYN(RSL)	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Power**
	6[1]	3	47 Hz – 10 KHz	16-bit	(±) 0.1°	0.25 VA / channel (max.)
D/L(R)VDT	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Power**
	5[1]	3	47 Hz – 10 KHz	16-bit	(±) 0.2% FS	0.1 VA / channel (max.)
I/O, TTL/CMOS	**Module**	**Channels**	**Input Range**	**Output level**	**Programmable**	
	D7	16	0 – 5.5 V	TTL/CMOS	Input or Output	
I/O, Differential	**Module**	**Channels**	**Input Range (422)**	**Input Range (485)**	**Output Range (422/485)**	
	D8	11 (16)[3]	-10V to +10V	-7V to +12V	-0.25V to +5V	
I/O, Discrete	**Module**	**Channels**	**Input Range**	**Output Range**	**Programmable**	**Notes**
	K6 (v4)	16	0 – 60 VDC	0 – 60 VDC	Input or Output	(500 mA – 2 A) (source/sink)
	K7	12 (16)[3]	±80V	±80V	Input or Output	Isolated switch (600mA)
Relay	**Module**	**Channels**	**Type**	**SW Volt/Current**	**SW Power (max)**	**Notes**
	KN[2], KL[2]	4	DPDT (1 CH Form C)	220V / 2A (max)	60W / 62.5 VA	KN=non-latch, KL=latching
Serial Communications	**Module**	**Channels**	**HW Interface levels support**		**Bit rate (Async/Sync)**	**Tx/Rx Buffer** **Notes**
	P8	4	RS-232/422/423(MIL-STD-188C, unbalanced)/485		1 / 4 Mbit/s per Ch.	32KB Partial modem
	PC	4	Isolated RS-422/485		1 / 4 Mbit/s per Ch.	32KB Partial modem
CANBus	**Module**	**Channels**	**CAN protocol**	**Message Buffer**	**Data rate (Prog)**	**Notes**
	P6, PA	4	P6= 2.0A/B / PA=J1939	16K RX/TX	1 Mb/s max.	Bosch® IP Core
MIL-STD-1553	**Module**	**Channels**	**Operational Modes**	**Onboard RAM**	**Bus Coupling Configuration**	
	N7, N8	2	BC,RT, BM, BM/RT	128Kbyte per ch	N7 = Transformer / N8 = Direct	
ARINC 429/575	**Module**	**Channels**	**Frequency**	**Input/output**	**Message Buffer**	
	A4	6	100 KHz or 12.5 KHz	RX/TX	256 word Tx/Rx	
DC Power Supply	**Module**	**Channels**	**Voltage Output**	**VOut Regulation**	**Current Output**	
	V1, V2	1, 2	± 15V	± 1%	± 450 mA(max)	
AC Reference	**Module**	**Channels**	**Frequency**	**Accuracy**	**Voltage**	**Power**
	W[1]	1	47 Hz – 20KHz	± 3%	2 – 115 VRMS	6 VA (max.)

PART NUMBER DESIGNATION

64C3 – XX XX XX XX XX XX X X X X –XX

Slot # 1 2 3 4 5 6

MODULE (SLOT) DEFINITION
Enter Module Designation (i.e.C1) for each slot (1 through 6). **Note 1**

ON-BOARD REFERENCE SUPPLY (W6, W7)
0 = No On-Board Reference Supply
1 = 2-28Vrms, 360-10kHz, Programmable (W6)
2 = Reserved for future use;
3 = 115Vrms Fixed, 360-10kHz, Programmable (W7)

MECHANICAL
F = Front Panel and Rear I/O (P2 & P0)
S = Front Panel and Rear P2 I/O (No P0)
P = Rear I/O only (P2 & P0)
G = Rear P2 I/O only (no P0)
W = P with Wedge-locks
A = VME64 Blank Front Panel with Rear I/O only (P2 & P0)
R = VME64 Blank Front Panel with Rear P2 I/O (No P0)
B = VME64 Front Panel and Rear I/O (P2 & P0)
T = VME64 Front Panel and Rear P2 I/O (No P0)
D = VME64 Blank Front Panel, Low profile extractors and Rear I/O only (P2 & P0)

ENVIRONMENTAL
C = 0 TO 70 °C;
K = C with conformal coating
H = -40 TO +85 °C with conformal coating

DUAL ETHERNET
0 = No Ethernet
1 = MB Port A to Front Panel Connection
2 = MB Port A to Rear P0 Connection
3 = MB Port A to Front and MB Port B to P0 Connection (2 ports)
4 = MB Port A and Port B to Rear P0 Connection (2ports)

ENCODER OUTPUTS FOR SYNCHRO / RESOLVER MODULES
0 = No Encoder outputs
1 = Encoders included for each specified Synchro module

SPECIAL OPTION CODE (OR LEAVE BLANK

Note 1: Enter 'Z0' if slot is **not** populated and no On-board Reference Supply is chosen. If slot #1 is unpopulated and an On-board Reference Supply is selected, enter either 'W6' if low voltage supply is selected (1), or 'W7' if high voltage supply (3) is selected.

For detailed specifications and complete part number designation visit **www.naii.com** to download Operations Manual.

For Ordering Information:
Phone – 631-567-1100
Fax – 631-567-1823

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