DIVELBISS CORPORATION
9776 Mount Gilead Road
Fredericktown, Ohio 43019

Data Sheet Number: 91009
Revision: A

Date: 08-07-91
Page 1 of 6

ICM-HDCPU-01 & ICM-HDCPU-02 DATA SHEET

PRODUCT DESCRIPTION:

The High Density CPU is a miniaturized version of the PIC Bear Bones PLC. The HDCPU does not have any resident "real" I/O. It interfaces directly to the complete line of High Density expanders, allowing the user full control over the type and quantity of I/O that is needed.

PRODUCT FEATURES:

- Small size and light weight

- Connects directly to any of the ICM-HDIO-XX series High Density Bear Bones expanders, the standard BEAR BONES product line expanders and special function cards such as the ACCESS BEAR, PRESTO PANEL and BOSS BEAR

- Mounts on industry standard DIN rail type NS 31 or NS 35

- Polarized and locking power and data bus connectors

- Optional NOVRAM to store internal CR status on power loss

- Can access up to 248 I/O of the Bear Bones address set

- Engineered to meet NEMA part ICS 3-304

- Polarized user EPROM "memory module" which protects the memory device

- Uses the same ladder logic as the standard BEAR BONES Line

- Made and engineered in USA

-- WARNING --

The ICM-HDCPU-0X series PLCs, as with other solid state control devices, must not be used in applications which would be hazardous to personnel in the event of failure of the controller. Precautions must be taken to provide mechanical and/or electrical safeguards external to the controller.

All specifications are subject to change without notice.

SPECIFICATIONS:

GENERAL

User Memory: 16k standard, one ICM-HDME-16 is included with each ICM-HDCPU-0X card

Scan Time: 2mSec per 1000 instructions

Time Base: 10Hz, derived from the 50/60Hz line frequency used for internal timers

Clock: 510KHz ± 2%

Internal Control Relays (CR): Qty. 491

Special Functions: Qty. 32, for internal timers or counters (Note: Each function used requires 12 of the internal CRs)

Programming: Standard BEAR BONES Ladder Logic using the PR05 and ICM-DOC-1 System
Program debug (emulation) uses the EM02 and PR05 and ICM-DOC-1 system

Operating Temperature Range: 0-60 deg. C

POWER INPUT

Input Voltage: 120VAC @ 1W, 50/60Hz, PLC Alone

POWER OUTPUT

Output Voltage: 5VDC @ 1A MAX. to supply logic power to connected expander/special function cards
Output Voltage: 10VDC (unregulated) @ 0.2A MAX. to supply relay expander (ICM-HDIO-17P,-19P)

APPLICATIONS:

The ICM-HDCPU-0X series PLC can be used in any application requiring programmable control of on/off outputs and monitoring of on/off inputs. Refer to COMPATIBILITY / CABLING DIAGRAM, page 5, for special function boards and other products in the ICM product line that are designed to work with the PLC and enhance system capabilities.

The ICM-HDCPU-0X series can access up to 124 inputs and 124 outputs of the BEAR BONES address set on Page 0, one-half of Page 1, and Pages 2 through 7 inclusive. Two pages of the address set are reserved for communications with a "host" BOSS BEAR. Page 6 is reserved for communications with a connected ACCESS BEAR. No expander should be addressed to Page 0 if a BOSS BEAR resides in the system or Page 6 if an ACCESS BEAR resides in the system.

INSTALLATION:

Line power for the HDCPU card is connected to TS1 on the PCB, with the terminals on TS1 labeled as to polarity. Refer to CARD DETAIL AND MOUNTING page 3.

- CAUTION - Be sure the feeding supply is off before handling the wires to make connections. TERMINATE THE GND TERMINAL TO EARTH GND.
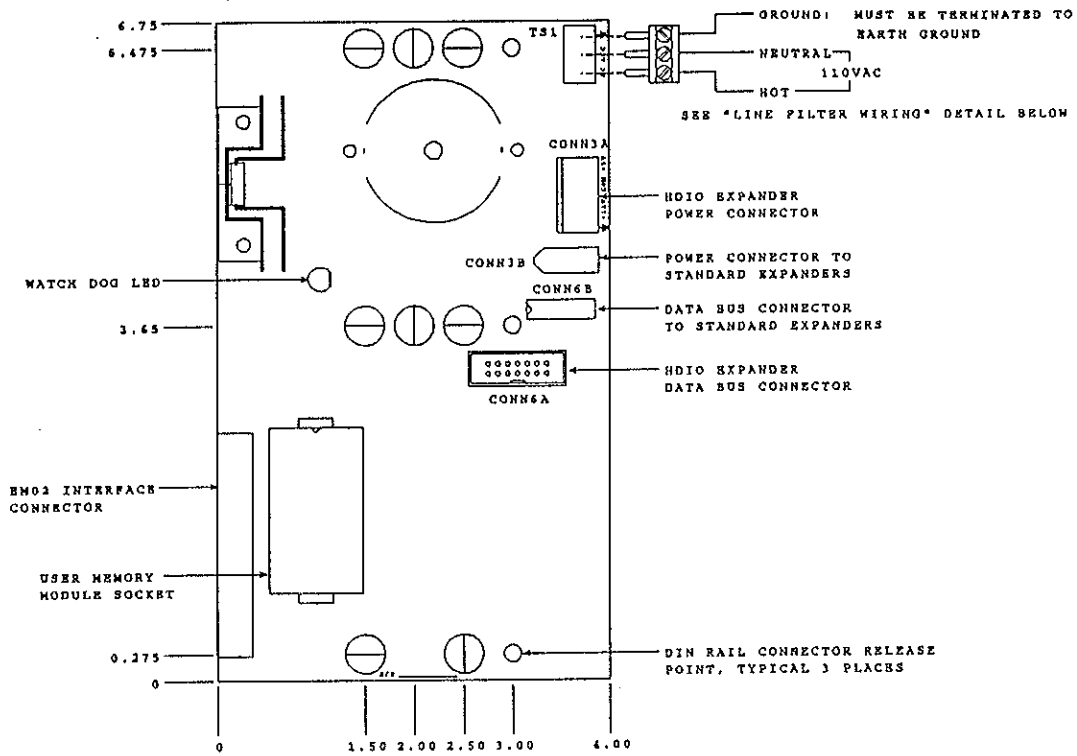
The HDCPU can operate on the factory-set 60 Hz line frequency or on 50Hz. Consult factory for 50Hz operation. This change affects only internal timer accuracy and poses no safety threat.

CARD DETAIL AND MOUNTING:

All cards mount on industry standard DIN rail type NS 31 or NS 35 and will function in any mounting attitude.

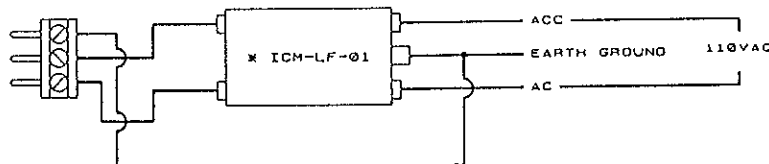## ICM-HDCPU-01P, ICM-HDCPU-02P

Note: Card is not drawn full scale.
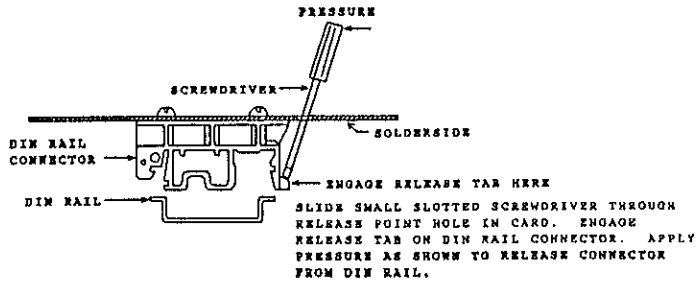See DIN RAIL RELEASE DETAIL page 4.

LINE FILTER WIRING DETAIL:

INSTALL LINE FILTER ON POWER INPUT AS SHOWN
FOR MAXIMUM IMMUNITY TO INDUSTRIAL ELECTRICAL NOISE

* See SPARE & REPLACEMENT PARTS page 6 for ordering information.
Note: Detail is not shown full scale.

DIVELBISS CORPORATION

DIN RAIL RELEASE DETAIL:

Note: Detail is not shown full scale.

HDIO CABLES:

Listed below are standard and specialty cables available for HDIO cards. Based on the cable information presented, it is up to the user to select the proper cable for his or her application(s). Power for the expanders comes from one of the ICM-HDCPU-0X series PLCs via CONN3 and CABLE3. CONN6 of the Expander must also be connected to CONN6A of the PLC via CABLE6.

HDIO STANDARD CABLES:

Part Number	Connection	Length
ICM-HDCA-01	HDCPU or HDBU to 1 HDIO expander	9.00"
ICM-HDCA-02	HDCPU or HDBU to 2 HDIO expanders	18.00"
ICM-HDCA-03	HDCPU or HDBU to 3 HDIO expanders	27.00"
ICM-HDCA-04	HDCPU or HDBU to 4 HDIO expanders	36.00"
ICM-HDCA-05	HDCPU or HDBU to 5 HDIO expanders	45.00"
ICM-HDCA-06	HDCPU or HDBU to 6 HDIO expanders	54.00"

Notes:
1. All cable part numbers include a 14 conductor data bus ribbon cable and a 5 conductor power cable.
2. Be sure to count all drop points in a system before ordering cables. For example, if system includes one HDCPU, two expanders and one HDBU card on a cable, the correct cable to order is ICM-HDCA-03 as three drop points are needed.

BOSS BEAR - BEAR BONES to HDIO CABLES:
Note: Boss Bear-Bear Bones to HDIO is 24", HDIO to HDIO is 9"

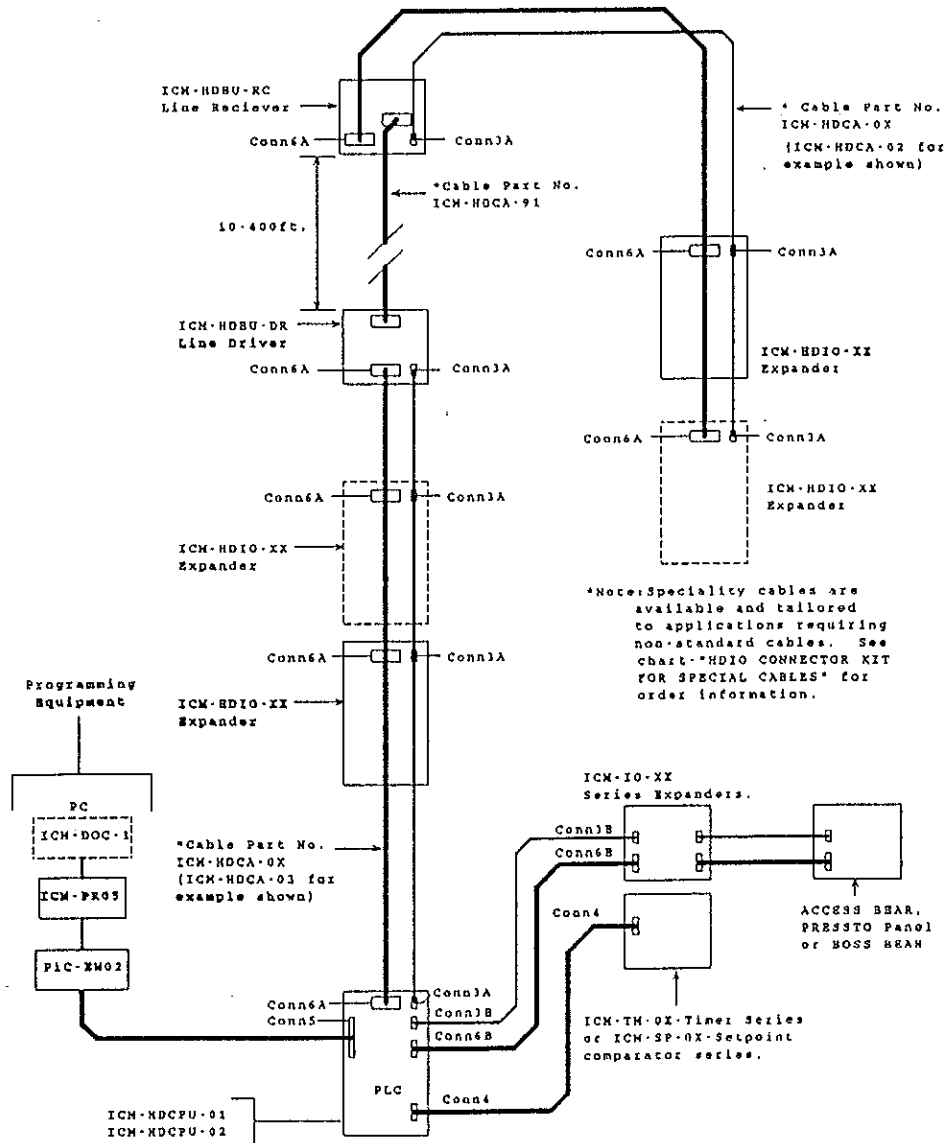| Part Number	Connection
ICM-HDCA-11	Boss Bear-Bear Bones to 1 HDIO expander
ICM-HDCA-12	Boss Bear-Bear Bones to 2 HDIO expanders
ICM-HDCA-13	Boss Bear-Bear Bones to 3 HDIO expanders
ICM-HDCA-14	Boss Bear-Bear Bones to 4 HDIO expanders
ICM-HDCA-15	Boss Bear-Bear Bones to 5 HDIO expanders
ICM-HDCA-16	Boss Bear-Bear Bones to 6 HDIO expanders

DIVELBISS CORPORATION

HDIO CONNECTOR KIT FOR SPECIAL CABLES:

Specialty cables are available and tailored to applications requiring non-standard cables. To order special cables, use the HD BEAR SPECIAL CABLES order form.

Part Number	Connection
CONKIT-001	FROM: Bear Bones, Bear Bones I/O, Presto Panel, Boss Bear
CONKIT-002	TO: Bear Bones I/O, Presto Panel
CONKIT-003	TO: Access Bear
CONKIT-004	TO: All HDIO Panels

COMPATIBILITY / CABLING DIAGRAM:

SPARE & REPLACEMENT PARTS:

The following components are available through Divelbiss. Orders may be placed via phone, fax, or mail.

Part Number	Description
116-101688	Detachable Terminal Strip
ICM-LF-01	DIVELBISS Line Filter
120-101615	DIN Rail Mounting Clip
120-100517	DIN Rail Mounting Screws
ICM-HDME-08	Memory Module, 8K
ICM-HDME-16	Memory Module, 16K
ICM-HDDR-01	DIN Rail type NS 31 or NS 35

SPECIALTY OPTIONS:

Special factory options are available to help tailor the product to custom applications. These options include but are not limited to:

- Conformal coating

- Private label

- Concept one (Custom boards)

For special assistance, contact our factory representatives at 1-800-245-BEAR(2327).