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security and/or personal sensitivities

Dear ,

I am pleased to enclose the following :

1. 3 copies - Drawing UP 4014 Refrigeration Pipe Layout plus notes on drawing.
2. 1 copy - General Description and Installation Data on the MSU-1 Monitor and Shutdown Unit.
3. 3 copies - A4 diagram - X-MP/2 (12 column) Power Distribution.
4. 3 copies - A4 diagram - Wire Diagram X-MP/2 (12 column).
5. 1 copy - Cray X-MP Models 11, 12, 14, 22 & 24 (6 column) Site Planning Manual - HR-0084.
6. 1 copy - Cray Support Equipment Site Planning Manual - HR-0082.
7. 1 copy - Cray Peripheral Equipment Site Planning Manual - HR-0080.

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Regarding (2) above, we have developed a more sophisticated Monitor and Shutdown Unit with microprocessor control and the ability to initiate variable shutdown sequences dependent on the error condition detected. The prototype of this device is now being tested at the Bracknell Data Centre. We plan to continue marketing the MSU-1 as well as the new unit.

Items (3) and (4) above are schematics for power distribution of a 12 column X-MP as requested. Note that for 400 Hz power and for refrigeration, the whole system is divided into two parts :

- (i) the CPU mainframe
- (ii) the IOC plus SSD

This differs from an earlier scheme shown in the X-MP Site Planning Manual HR-0028.

A 12 column X-MP would normally be installed with three 400 Hz MG sets, two running and one on standby. In these diagrams I have shown only two MG sets to conform with the constraints of your site.

I think I may have given some wrong information in our telephone communications on 5th February on the subject of the number of cables from the 400 Hz Distribution Panels and the Cray PDU's. The diagrams in (3) and (4) above and the drawings I have previously sent referring to the 6 column X-MP system will confirm the following :

<u>SYSTEM(S)</u>	<u>PANEL 1 OUTPUT</u>	<u>PANEL 2 OUTPUT</u>
6 column X-MP/1 incl. SSD	7 x 100A circuits	Nil
12 column X-MP/2 incl. SSD	6 x 125 A circuits	4 x 100A circuits
6 column X-MP/1 incl. SSD plus 2nd 6 column X-MP	7 x 100A circuits	up to 7 x 100A circuits

I would be glad if you could pass the information contained here to the relevant people.

I am not certain whether you have copies of the latest Site Planning Manuals for the 6 column X-MP systems, so I have enclosed a set. The peripheral equipment and the support equipment are now described in separate manuals.

Please let me know if you need any more information.

Yours sincerely,

ENGINEERING SERVICES MANAGER

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NOTES ON DRAWING UP 4014

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This pipe layout allows for the following possibilities:-

1. Initial Cray X-MP/1 with 6 column CPU mainframe plus IOC plus SSD. This configuration would use refrigeration system 'A' only. The pipe layout of system 'A' is basically the same as that in Figure 2-5 of Site Planning Manual HR-0084 with some deviation in pipe routing to allow for flexibility and to avoid a clash of pipes and cables in the floor cavity.
2. Initial Cray X-MP/2 with 12 column CPU mainframe plus IOC plus SSD. This configuration would use refrigeration systems 'A' and 'B'.
3. '1' above upgraded later to an X-MP/2 or X-MP/4 with 12 column CPU mainframe plus IOC plus SSD.
4. '1' with the later addition of another X-MP/1 or X-MP/2 with 6 column CPU mainframe. The latter would use refrigeration system 'B-1', a modification of 'B', instead of 'B'.

The drawing shows the outline of the configuration '2' in position.

GENERAL DESCRIPTION

The monitor and shutdown unit is designed to protect any Cray system from serious damage due to hardware malfunction or services failure, by removing all power in a controlled manner. The unit has been made as flexible as possible, to cover for various customer requirements, whilst keeping production costs low.

The function of this unit is to monitor up to eight inputs. When any input changes state, an output sequence is initiated. The output stage consists of eight undedicated, separately timed, relay circuits. Delay times range from seconds to several hours.

Operation of the unit has been kept as simple as possible. One, two position switch on the front panel, puts the unit into 'RESET' mode or 'MONITOR' mode.

Some specific features of the unit are:

- a One pole of the reset switch is undedicated, allowing customer connection. This is useful for connecting to building alarm circuits. i.e. monitor unit must be in monitor mode before alarm can be set.
- b If there is an input condition already present when the panel is switched to monitor mode, an alarm is sounded on the unit and the timers and output relays are not initiated.
- c CMOS circuitry is used throughout. This gives good noise immunity, low power consumption and high reliability.
- d DC voltage is 12V, allowing adaption to battery backup if required.
- e The output relays can all be disabled or individually disabled when the unit is not in use for long periods.

INSTALLATION DATAM.S.U.1

1. THE MONITOR AND SHUTDOWN UNIT (MSU1) is a wall mounted unit, used to monitor the Cray System, during periods when building is locked and unattended, not for casual use when operators are in the building.

When the MSU1 is put into "Monitor Mode" and a fault subsequently arises, the Cray System will be sequentially powered down. This removes all power to the system and will result in a minimum 2 hour power up period. (i.e. all support equipment is also powered down).

2. WEIGHT

The MSU1 weighs approximately 10 kilograms.

3. LOCATION

The MSU1 is located within the Cray operating area.

4. ACCESS REQUIREMENTS

A 300 mm clearance must be provided at the front of the panel to allow for door swing to gain access to internal components and wiring.

5. COOLING REQUIREMENTS

The MSU1 uses ambient air for cooling.

6. ROOM HEAT LOADING CHARACTERISTICS

The heat generated by the MSU1 is negligible.

7. POWER WIRING REQUIREMENTS

The MSU1 requires the installation of a single phase 60Hz, 120v, 1.5 amps circuit, or a 50Hz, 250v, 1.5 amps circuit. This should not be switched by the power down sequence.

Control wiring will be dependent upon site configuration.

8. EARTH GROUNDING REQUIREMENTS

An earth ground strap from the MSU1 to the Cray Earth System, as described in the Cray installation manual, must be supplied.

9. DIMENSIONS

WIDTH	300 mm
DEPTH	150 mm
HEIGHT	300 mm

- 2 -

10. I/O CHARACTERISTICS

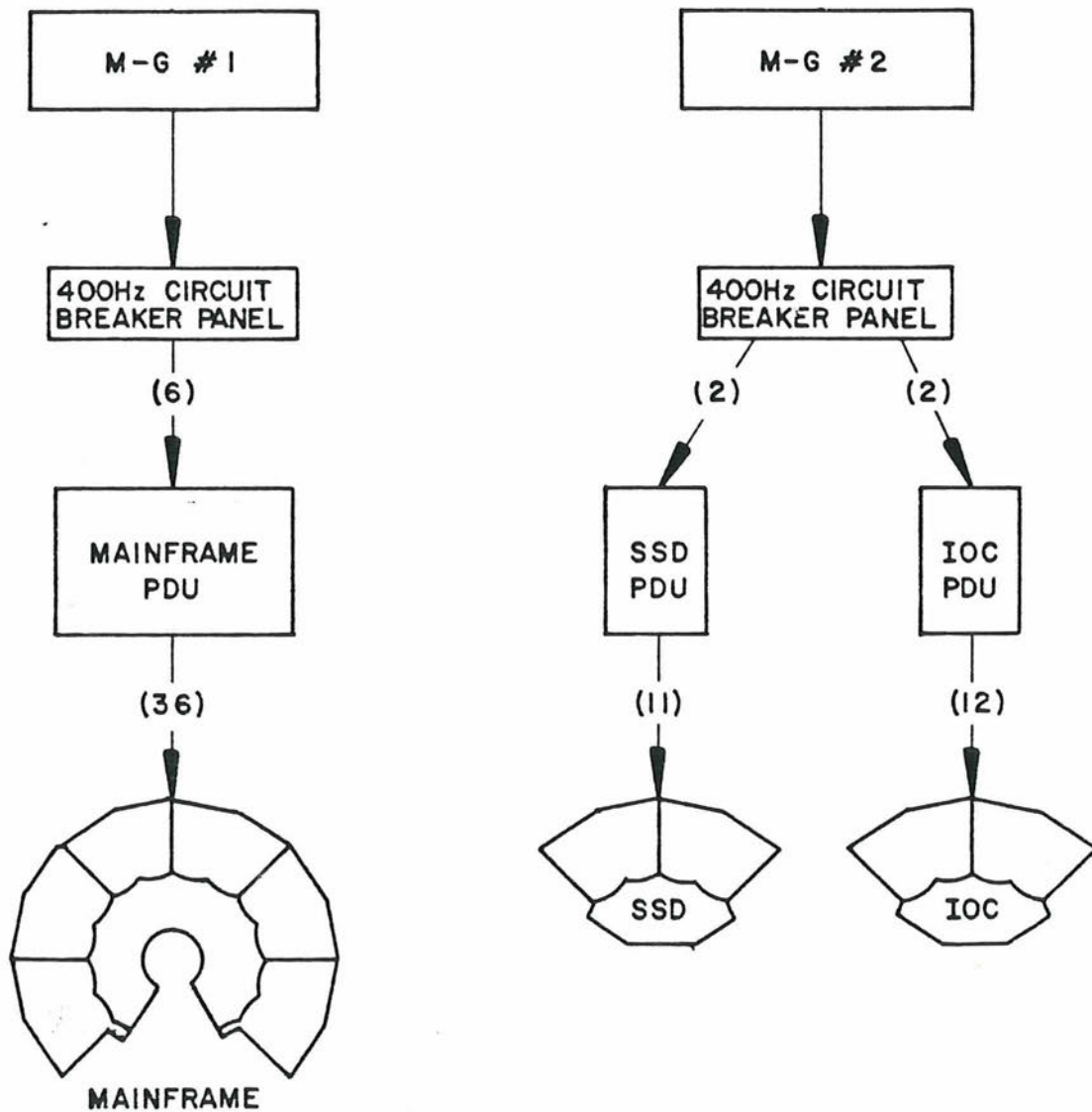
The input circuits are two-wire 'open on fault' circuits. There are six of this type. There are also two pulse inputs for use by Cray in monitoring the CPU activity.

The output circuits are eight, two pole, changeover relays, (double pole double throw). The voltage rating is 250v a.c. and the maximum switching current is 10 amps.

Connection for the input and output circuits is made by screw clamping terminal blocks.

11. CABLE SIZES

The two pulse inputs will be connected by Cray personnel with Cray supplied cable. The six two-wire circuits require two core 1mm² cable, type optional. The output circuits used in a standard installation require two core 1mm² cable, type optional. Any extra circuits specified by the Customer will require cable as necessary. Note the restrictions of the output relays.

X-MP/2
(12 COLUMN)**POWER DISTRIBUTION**

(QTY) REPRESENTS NUMBER OF POWER CIRCUITS

