Fermilab

$\bar{p}$ Note #395

INVENTORY AND COST ESTIMATE FOR CONTROLS FOR ANTIPROTON SOURCE

D. McConnell

4/6/84

INVENTORY AND COST ESTIMATE FOR CONTROLS FOR ANTIPROTON SOURCE

84/06/14

D MCCONNELL

DEFINATIONS FOR COLUMN HEADERS

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ENGRES = ENGINEER RESPONSIBLE
UNIT   = UNIT COST
REFE   = REFERENCE FOR UNIT COST ESTIMATE
          A  = R. J. DUCAR    28 SEPT 83  REVIEWED  8 JUN 84
          B  = DIXON BOGERT    12 JUN 84
          C  = ED CORLETT (LECROY)  1 JUN 84
          D  = K. SEINO  17 FEB 84  REVIEWED  8 JUN 84
          E  = A. FRANCK  17 FEB 84
          F  = L. BARTELSON  17 FEB 84  REVIEWED  8 JUN 84
          G  = D. VOY    17 FEB 84  REVIEWED  12 JUN 84
          H  = D. BEECHY 22 FEB 84
          I  = J. ZAGEL  28 FEB 84  REVIEWED  8 JUN 84
          J  = ENGELBRECHT   28 FEB 84
          K  = R. GERIG  1 MAR 84  REVIEWED  8 JUN 84
          L  = R. PASQUINELLI  1 APR 84
          Z  = FROM PURCHASE REQUISITION
FIRST  = DELEVERY DATE OF FIRST ITEM
ALL    = DELEVERY DATE OF ALL ITEMS
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ITEM	AP10	AP30	AP50	APTB	F23	F27	BSE	UKN	SPAR	TOTAL	MAG	VAC	RF	STOC	TAR	DIA	OTHE	SPAR	TOTAL
032	4	3	4	6	5	4	0	0	4	30	0	0	0	0	3	23	0	4	30
052	5	13	0	1	0	0	0	0	2	21	0	0	18	0	1	0	0	2	21
053	11	7	4	0	2	0	1	6	3	34	27	0	4	0	0	0	0	3	34
054	5	6	6	2	0	0	0	0	3	22	19	0	0	0	0	0	0	3	22
057	0	0	0	1	0	0	0	0	1	2	0	0	0	0	1	0	0	1	2
058	2	5	0	0	0	0	0	0	2	9	0	0	0	7	0	0	0	2	9
064	1	0	0	0	0	0	0	0	1	2	0	0	1	0	0	0	0	1	2
070	3	0	0	0	0	0	0	0	1	4	0	0	3	0	0	0	0	1	4
071	6	0	0	0	0	0	0	0	1	7	0	0	6	0	0	0	0	1	7
080	8	17	6	0	0	0	0	0	3	34	0	6	0	13	0	12	0	3	34
119	9	17	25	9	23	34	9	3	10	108	96	0	0	0	2	0	0	10	108
165	0	0	0	0	6	0	0	0	1	7	6	0	0	0	0	0	0	1	7
170	2	2	2	1	1	1	0	1	2	12	0	9	1	0	0	0	0	2	12
177	14	8	10	6	3	1	1	9	5	57	19	0	7	3	2	20	1	5	57
178	1	0	0	0	0	0	0	5	1	7	5	0	1	0	0	0	0	1	7
180	4	4	3	1	0	0	0	0	2	14	0	0	3	8	1	0	0	2	14
181	1	1	4	3	1	1	0	0	2	13	0	0	3	0	1	7	0	2	13
182	21	12	13	0	0	0	0	0	4	50	8	0	8	30	0	0	0	4	50
190	6	4	8	5	2	2	1	0	3	31	17	0	6	2	3	0	0	3	31
191	0	0	0	5	0	0	0	5	1	11	0	0	0	0	5	5	0	1	11
200	0	0	0	0	0	0	0	15	0	15	0	0	0	0	0	0	15	0	15
488 GPIB/RS232 INT	6	3	6	1	0	0	0	3	3	22	5	3	3	4	1	3	0	3	22
BAKEOUT MULTIBUS	2	2	2	0	0	0	0	0	1	7	0	6	0	0	0	0	0	1	7
TSCC	13	10	11	5	3	2	1	0	5	50	19	0	6	8	2	6	4	5	50
CAMAC CRATES	13	10	11	5	3	2	1	0	5	50	19	0	6	8	2	6	4	5	50
NIM STANDARD CRATE	2	2	2	0	0	0	0	0	1	7	0	0	0	0	0	6	0	1	7
REPEATER CRATES	4	3	3	2	1	1	0	0	4	18	0	0	0	0	0	0	14	4	18
FAN-IN	8	6	6	4	2	2	0	0	3	31	0	0	0	0	0	0	28	3	31
FAN-OUT	6	6	6	4	2	2	0	0	3	29	0	0	0	0	0	0	26	3	29

ITEM	AP10	AP30	AP50	APTB	F23	F27	BSE	UKN	SPAR	TOTAL	MAG	VAC	RF	STOC	TAR	DIA	OTHE	SPAR	TOTAL
UNIVERSAL REPEATER	11	0	0	0	0	0	0	0	2	13	0	0	0	0	0	0	11	2	13
UR-PS	4	3	3	2	1	1	0	0	4	18	0	0	0	0	0	0	14	4	18
DFB RF TUNING	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
CIA CRATES	3	3	2	1	0	0	0	1	1	11	0	9	1	0	0	0	0	1	11
CIA REAR PANEL	3	3	2	1	0	0	0	1	1	11	0	9	1	0	0	0	0	1	11
ION PUMP/GUAGE CRD	8	11	8	2	0	0	0	0	4	33	0	29	0	0	0	0	0	4	33
SUB PUMP/ROUGH CRD	7	9	5	1	0	0	0	0	4	26	0	22	0	0	0	0	0	4	26
TC GUAGE CARD	2	2	2	1	0	0	0	0	2	9	0	7	0	0	0	0	0	2	9
CC GUAGE CARD	2	2	2	1	0	0	0	0	2	9	0	7	0	0	0	0	0	2	9
SECTOR VALVE CARD	4	4	4	2	0	0	0	0	2	16	0	14	0	0	0	0	0	2	16
RELAY CARD	2	2	2	1	0	0	0	0	1	8	0	7	0	0	0	0	0	1	8
EUROCARD CAGE & PS	4	4	2	1	0	0	0	0	2	13	0	0	2	8	1	0	0	2	13
BOX & FAN (STOC)	4	4	2	1	0	0	0	0	2	13	0	0	2	8	1	0	0	2	13
DIGITAL CONT CARD	18	12	0	0	0	0	0	0	5	35	0	0	0	30	0	0	0	5	35
STATUS RDBK CARD	19	14	16	8	0	0	0	0	6	63	0	0	16	33	8	0	0	6	63
TWT PROT MON	0	33	0	0	0	0	0	0	7	40	0	0	0	33	0	0	0	7	40
TWT COMPUTER	0	7	0	0	0	0	0	0	3	10	0	0	0	7	0	0	0	3	10
12-BIT MADC	5	3	7	3	1	1	1	3	2	26	11	0	6	2	2	0	3	2	26
ANALOG FAN-IN	5	3	7	3	1	1	1	3	2	26	11	0	6	2	2	0	3	2	26
14-BIT CONTROLLER	1	1	1	1	1	1	0	0	2	8	6	0	0	0	0	0	0	2	8
14-BIT ADC MODULE	10	10	15	7	24	7	0	0	8	81	73	0	0	0	0	0	0	8	81
14-BIT TRANS LINE	1	1	1	1	1	1	0	0	2	8	6	0	0	0	0	0	0	2	8
SAMPLE & HOLD	0	0	0	1	0	0	0	0	1	2	0	0	0	0	1	0	0	1	2
XMR	0	0	0	0	0	0	0	30	0	30	30	0	0	0	0	0	0	0	30
XMR X-MITTER	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	0	1	2
MOTOR MULTIPLEXER	0	0	0	1	0	0	0	0	1	2	0	0	0	0	1	0	0	1	2
BPM/BLM CONTROL	4	4	4	0	0	0	0	0	2	14	0	0	0	0	0	12	0	2	14
BPM ANALOG BOX	4	4	4	0	0	0	0	0	0	12	0	0	0	0	0	12	0	0	12
PINGER CONTROLS	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	0	4

ITEM	AP10	AP30	AP50	APTB	F23	F27	BSE	UKN	SPAR	TOTAL	MAG	VAC	RF	STOC	TAR	DIA	OTHE	SPAR	TOTAL
FLYING WIRE CONT	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	0	5
SCANNING WIRE	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	0	4
REF CONTROLLER	2	1	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	3
LECROY 4434	0	0	0	0	0	0	0	5	1	6	0	0	0	0	0	5	0	1	6
LECROY 4222	3	2	2	0	0	0	1	2	1	11	10	0	0	0	0	0	0	1	11
LECROY 4208	1	1	1	0	0	0	0	0	1	4	3	0	0	0	0	0	0	1	4
TV SYSTEM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
MR RF CONTROLS	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1

ITEM	ENGRES	UNIT	REFE	TOTAL	FIRST	ALL	
032	J. ZAGEL	460	Z	13800	1 MAY 84	1 JUN 84	
052	R. J. DUCAR	500	A	10500	1 AUG 84	1 AUG 84	
053	R. J. DUCAR	500	A	17000	NOW	1 JUL 84	
054	R. J. DUCAR	600	A	13200	1 MAY 84	1 SEP 84	
057	W. KNOPF	500	A	1000	NOW	1 OCT 84	
058	W. KNOPF	500	A	4500	1 SEP 84	1 DEC 84	
064	R. J. DUCAR	300	A	600	NOW	1 AUG 84	
070	R. J. DUCAR	1000	A	4000	NOW	NOW	
071	R. J. DUCAR	1000	A	7000	NOW	1 JUL 84	
080	R. J. DUCAR	900	A	30600	NOW	1 AUG 84	SEE NOTE 1
119	W. KNOPF	600	A	64800	NOW	1 OCT 84	
165	W. KNOPF	750	A	5250	NOW	1 SEP 84	
170	J. ZAGEL	500	A	6000	NOW	NOW	
177	A. FRANCK	500	A	28500	NOW	NOW	
178	D. BEECHY	450	A	3150	NOW	1 APR 84	
180	R. J. DUCAR	400	A	5600	NOW	1 JUL 84	
181	R. J. DUCAR	400	A	5200	NOW	1 JUL 84	
182	R. J. DUCAR	400	A	20000	15 APR 84	1 AUG 84	
190	W. KNOPF	1000	A	31000	1 MAR 84	1 SEP 84	
191	W. KNOPF	1000	–	11000	1 APR 84	1 SEP 84	
200	R. J. DUCAR	1000	A	15000	NOW	1 AUG 84	
488 GPIB/RS232 INT	K. SEINO	1500	D	33000	15 JUL 84	15 SEP 84	SEE NOTE 1
BAKEOUT MULTIBUS	D. BEECHY	3900	B	27300	U	U	SEE NOTE 1
TSCC	R. J. DUCAR	1000	A	50000	NOW	1 AUG 84	
CAMAC CRATES	R. J. DUCAR	1700	A	85000	NOW	NOW	
NIM STANDARD CRATE	E. MALAMUD	-0-	–	0	U	U	
REPEATER CRATES	R. J. DUCAR	1000	A	18000	NOW	NOW	
FAN-IN	R. J. DUCAR	200	A	6200	NOW	1 APR 84	
FAN-OUT	R. J. DUCAR	200	A	5800	NOW	1 APR 84	

ITEM	ENGRES	UNIT	REFE	TOTAL	FIRST	ALL
UNIVERSAL REPEATER	R. J. DUCAR	200	A	2600	NOW	1 APR 84
UR-PS	R. J. DUCAR	200	A	3600	NOW	NOW
DEB RF TUNING	J. ZAGEL	3000	I	3000	1 SEP 84	15 OCT 84
CIA CRATES	J. ZAGEL	1100	A	12100	NOW	15 AUG 84
CIA REAR PANEL	BARTELSON	800	F	8800	-	15 JUN 84
ION PUMP/GUAGE CRD	BARTELSON	70	F	2310	-	15 APR 84
SUB PUMP/ROUGH CRD	BARTELSON	100	F	2600	-	15 AUG 84
TC GUAGE CARD	BARTELSON	100	F	900	-	NOW
CC GUAGE CARD	BARTELSON	100	F	900	-	1 AUG 84
SECTOR VALVE CARD	BARTELSON	90	F	1440	-	15 APR 84
RELAY CARD	BARTELSON	70	F	560	-	15 APR 84
EUROCARD CAGE & PS	D. BEECHY	700	H	9100	1 MAY 84	1 AUG 84
BOX & FAN (STOC)	D. BEECHY	400	H	5200	1 MAY 84	1 AUG 84
DIGITAL CONT CARD	D. BEECHY	250	H	8750	1 MAY 84	1 AUG 84
STATUS RDBK CARD	D. BEECHY	250	H	15750	1 MAY 84	1 AUG 84
TWT PROT MON	D. VOY	1300	L	52000	16 APR 84	1 DEC 84
TWT COMPUTER	D. VOY	5000	G	50000	1 JUN 84	1 DEC 84
12-BIT MADC	K. SEINO	2500	A	65000	15 MAY 84	JUN&OCT 84
ANALOG FAN-IN	K. SEINO	500	A	13000	15 MAY 84	JUN&OCT 84
14-BIT CONTROLLER	K. SEINO	1720	D	13760	1 SEP 84	15 DEC 84
14-BIT ADC MODULE	K. SEINO	680	D	55080	1 SEP 84	15 DEC 84
14-BIT TRANS LINE	K. SEINO	1430	D	11440	1 SEP 84	15 DEC 84
SAMPLE & HOLD	A. FRANCK	1500	E	3000	1 JUL 84	U
XMR	D. BEECHY	1000	A	30000	15 JUN 84	U
XMR X-MITTER	D. BEECHY	2000	H	4000	15 JUN 84	U
MOTOR MULTIPLEXER	A. FRANCK	2500	E	5000	1 JUL 84	U
BPM/BLM CONTROL	J. ZAGEL	8000	I	112000	1 JUN 84	1 AUG 84
BPM ANALOG BOX	GERIG/ZAGE	1784	K	21408	U	1 NOV 84
PINGER CONTROLS	U	-0-	-	0	U	U

SEE APPENDIX

ITEM	ENGRES	UNIT	REF E	TOTAL	FIRST	ALL
FLYING WIRE CONT	U	-0-		0	U	U
SCANNING WIRE	U	-0-	-	0	U	U
RF CONTROLLER	J. ZAGEL	7800	A	23400	NOW	1 AUG 84
LECROY 4434	E. MALAMUD	2380	C	14280	PREP	PREP
LECROY 4222	E. MALAMUD	3970	C	43670	ORDER	2-3 MONTHS
LECROY 4208	E. MALAMUD	3840	C	15360	ORDER	2-3 MONTHS
TV SYSTEM	ENGELBRECH	30531	J	30531	U	U
MR RF CONTROLS	MACLACHLAN	4600	-	4600	NOW	NOW

SEE NOTE 2

SUM TOTAL
1168139

NOTE 1

The accumulator bakeout GPIB interface could either be a CAMAC 080/MULTIBUS system or a CAMAC 488 system. Final decision will have to wait for an accurate determination of bakeout memory requirements. The CAMAC 080/MULTIBUS system is currently expected to be required.

NOTE 2

The MAIN RING RF controls for the bunch coalescing cavities are nearly completely installed in service building F0. These controls consist of:

CAMAC 071	2 (?)	AT	1000	=	2000
CAMAC 181	3	AT	400	=	1200
CAMAC 182	1	AT	400	=	400
CAMAC 154	1	AT	500 (?)	=	500
CAMAC 053	1	AT	500	=	500
CAMAC 190	EXISTING				-
MADC	EXISTING				-
		TOTAL		=	$4600

APPENDIX

EXPLAINATION OF 12-BIT MADC COUNT

At present, the allocation of MADC channels for beamline magnet power supplies, ring and beamline correction elements and shunts does not include reference(digitizing the dac output) channels. Since these supplies are not ramped supplies, it is expected that reference channels will find littel utility. Experience from the operation of similar equipment in Switchyard shows that the control room procedure when a problem with a power supply exists is to drive out to the supply with a replacement camac card and change the card, and then see if the problem is corrected.

The following table summarizes MADC usage:

CATAGORY / LOCATION	MAGNETS	VACUUM	RF	STOCHASTIC	TARGET	DIAGNOSTIC	OTHER	SPARE	TOTAL
AP10	3	0	1	1	0	0	0	0	5
AP30	2	0	0	1	0	0	0	0	3
AP50	2	0	5	0	0	0	0	0	7
F27	1	0	0	0	0	0	0	0	1
APTB	1	0	0	0	2	0	0	0	3
F23	1	0	0	0	0	0	0	0	1
BSE	1	0	0	0	0	0	0	0	1
UNKNOWN	0	0	0	0	0	0	3	0	3
SPARE	0	0	0	0	0	0	0	2	2
TOTAL	11	0	6	2	2	0	3	2	26

21 UNITS + 3 UNITS + 2 SPARES = 26 UNITS
reference
expansion

TABLE NOTES

(1) Diagnostic catagory has 108 distributed (BPM/BLM System) madc channels counted in the Magnet and RF catagories.

(2) Stochastic cooling use of MADC channels is for thermocouples, 60 channels in AP10 and 20 channels in AP30.

(3) As per Dixon Bogert request, 3 MADC units (other catagory) are included in the count should the need ever arise to provide reference channels. The required capacity easily exists in the Target building, F23, F27, and BSE. One unit would be required