P800 CATALOGUE

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Preface

In the chapters 1 through 8 of this P800 catalogue all available P800 hardware items are listed with as many characteristics as are necessary to configurate P800 systems. Items mentioned in these eight chapters are divided in two categories or "classes": class A and class B.

Items belonging to class A are regular items which also occur in pricelists and leadtimelists. In general pricing of these items can be considered competitive. Leadtimes of these products vary between 1 and 3 months in general.
A regular production of these items takes place, so as to guarantee short leadtimes and competitive pricing. Where necessary and feasible a commercial stock is maintained.

Items belonging to class B differ from items in class A in that the amount needed per year is or has become relatively small, in such a way that regular production is no longer justified. Orders received before January, 1st, May, 1st or September, 1st will result in a production batch which will be delivered with an average leadtime of six months from the relevant date. A seperate pricelist for class B items is available.

In some cases the classification A or B is extended with an asterix *. An item in class A* will move to class B or B* one year after the date the present catalogue has become valid; an item in class B* will be removed from the catalogue after one year.
Also the class X occurs. Items in this class are new items, which have not yet been officially announced, but which will become available shortly after the present catalogue has become valid. Announcement will be done via a Product Marketing Information letter, stating technical details, price and delivery time.

All items mentioned in the chapters 1 through 8 are also listed in their numerical order in the Index, which has been added to this catalogue.
For most items, wherever applicable, it is indicated in which systems they can be used. Under the heading "Applicable system" 1 stands for P851, 2 for P852, etc.

Orders on items or products, which are not mentioned in this catalogue, will not be accepted, unless a special agreement with the customer exists.

The general form of P800 hardware typenumbers is "P8xx-yyy/zz". The group "P8xx" indicates the type of product, e.g. the typenumber of all items related to floppy discs starts with "P830". The group "-yyy" always occurs and is a further definition of the item. The group "/zz" is not always used. When it occurs it defines variations of the same hardware item and is necessary to define the item unambiguously.

P800 software is divided in four classes. Class 1 contains standard software products, listed in chapter 9 of this catalogue. For these products PDS accepts obligations with regard to delivery, maintenance and support.
Class 1 is divided in two subclasses: class 1a containing current products for which active and passive maintenance is provided and class 1b containing frozen products for which only urgently required passive maintenance is provided.
Class 2 contains special software products for which PDS accepts only responsibilities as specified in the product announcement.
Class 3 contains discontinued software products, which means obsolete products from classes 1 and 2. These products are in general not delivered to end-users. PDS accepts no responsibilities with regard to maintenance and support.
Class 4 contains user programs. On request PDS provides a list of these programs. PDS does not distribute these programs and does not accept any obligations.

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In chapter 10 a list of available test software is given.

Although this catalogue has been prepared with the utmost care in order to avoid errors, ambiguities and misunderstandings it will probably show, that this goal has not been reached completely. Your comments and remarks aimed at improvement of this catalogue will be gratefully appreciated.

Chapter 1. P800 Basic Systems

CPU characteristics

In the P800-series several different CPU's are known. These CPU's form usually part of the basic systems and can not be delivered separately, unless special agreements concerning price and delivery-conditions have been agreed upon.

In the table below the most important characteristics of the CPU's are summerized to facilitate comparison.

	P851	P853 -x00	P853 -x57	P854	P856	P857	P858	P859	P870
P800 standard instruction set	x	x	x	x	x	x	x	x	x
move instructions, extended addressing instructions				x		x	x	x	
bit-handling instructions		x	x	x			x	x	x
string-handling instructions				x			x	x	
interface for floating point processor (FPP)				x		x	x	x	
32k 16-bits words integrated RAM MOS memory			x						
logical addressing for up to 32k 16-bits words	x	x	x	x	x	x	x	x	x
physical addressing for up to 128k 16-bits words						x	x		
physical addressing for up to 512k 16-bits words				x				x	
number of interrupt lines	16	12	12	28	8	8	5	5	12
number of binary encoded interrupts	-	-	-	-	63	63	61	61	-
number of serial encoded interrupts	-	62	62	61	-	-	-	-	62
integrated I/O processor with 15 subchannels ‡)				x			x	x	
memory management unit allowing addressing beyond 32k, dynamic relocation and memory protection				x		x	x	x	
direct access (read/write) for up to 256 external registers	x				x	x			
direct access (read/write) for up to 240 external registers		x	x						x
direct access (read/write) for up to 224 external registers				x			x	x	
integrated V24 serial interface				x	x	x	x	x	x
general purpose initial program loader	x	x	x	x	x	x	x	x	
power failure/automatic restart	x	x	x	x	x	x	x	x	x
real time clock, line frequency	x	x	x	x	x	x	x	x	x
DMA facility	x	x	x	x	x	x	x	x	x
serial interface for control panel		x	x	x			x	x	
parallel interface for control panel					x	x			
16 hardware registers, 14 of which are programmable	x	x	x	x	x	x	x	x	x
general purpose bus, simplified (GPBS)	x								
general purpose bus (GPB)					x	x	x		
general purpose bus, extended addressing								x	
general purpose bus, unified (UPL)		x	x	x					x
microdiagnostic facility	x	x	x	x	x	x	x	x	
double Euro card format (160 x 233.4 mm)	x	x	x	x					x
Belier card format (420 x 350 mm)					x	x	x	x	
number of cards	1	1	1	3	1	2	1	1	1

‡) break level 0 is used for FPP

Basic systems

In the P800-series "Basic Systems" have been defined.

A basic system consists of
- a mounting box (rack) with a certain number of slots in which memory cards and control units can be inserted
- an integrated power supply unit
- a control panel and/or control panel interface
- a CPU-card or -cardset.

The basic systems as described below do not contain any memory, except for P853-257, P853-357, P870-256 and P870-356. However, for reasons of system-responsibility no systems without memory can be delivered, unless a special arrangement with the customer has been made.

In some cases a basic system is equipped with a battery pack and logic for power supply during power failure and with a filter option.

Mounting gear for standard 19" cabinets is supplied with all basic systems.

The characteristics of the P800 basis systems are given in four tables.
In table 1 the typenumbers to be used for ordering and a short description can be found. If apart from the typenumbers any models are mentioned only these models can be ordered.
Table 2 indicates which racks, resp. boxes and which CPU-cards, both described with their technical names, are comprised in the basic systems.
Table 3 contains the power characteristics and mounting codes.
In table 4 the basic system box lay-out is described.

Table 1: Typenumbers and available models

Type Number	Description	Class
P851-100	P851 Basic System with 12 free general purpose slots	A
	models: P851-100/01 incl. minipanel card	
	P851-100/11 incl. full control panel	
P851-200	P851 Basic System with 5 free general purpose slots	A
	models: P851-200/11 incl. minipanel card and filter	
	P851-200/12 incl. hand held control panel and filter	
	P851-200/41 incl. minipanel, filter and battery	
	P851-200/42 incl. hand held control panel, filter and battery	
P852-100	P852 Basic System with 3 free general purpose slots	B1
P852-200	P852 Basic System with 5 free general purpose slots	B1
P852-400	P852 Basic System with 9 free general purpose slots	B1
	models: P852-x00/01 incl. full control panel	
	P852-x00/11 incl. full control panel, PF/AR, Real time clock, I/O typewriter CU	
	P852-x00/21 incl. minipanel, PF/AR, Real time clock, I/O typewriter CU	
	P852-x00/31 incl. minipanel	

Type Number	Description	Class
P853-200	P853 Basic System with 5 free general purpose slots incl. control panel interface for hand held control panel	A‡
P853-257	P853 Basic System with 5 free general purpose slots incl. 32K 16-bit words of memory, access time 0.58 us, and control panel interface for hand held control panel	A‡
P853-300	P853 Basic System with 11 free general purpose slots incl. control panel interface for hand held control panel	A‡
P853-357	P853 Basic System with 11 free general purpose slots incl. 32K 16-bit words of memory, access time 0.58 us, and control panel interface for hand held control panel models: P853-xxx/11 incl. filter P853-xxx/41 incl. filter and battery	A‡
P854-300	P854 Basic System with 9 free general purpose slots incl. control panel interface for either hand held control panel or extended digital control panel. A ventilation unit is mandatory if the system is mounted in a cabinet, otherwise it is strongly recommended. models: P854-300/41 not equipped for slave-memories, incl. filter board and battery P854-300/51 not equipped for slave-memories, incl. filter board and 2 batteries P854-302/41 equipped for 2 slave-memories, incl. filter board and battery P854-302/51 equipped for 2 slave-memories, incl. filter board and 2 batteries P854-304/41 equipped for 4 slave-memories, incl. filter board and battery P854-304/51 equipped for 4 slave-memories, incl. filter board and 2 batteries	A
P854-400	P854 Basic System with 20 free general purpose slots incl. power supplies PSUB and PSUM, battery back-up, filter board, ventilation unit and control panel interface for either hand held control panel or extended digital control panel. models: P854-400 not equipped for slave-memories P854-404 equipped for 4 slave-memories P854-408 equipped for 8 slave-memories	A
P856-100	P856 Basic System with 3 free general purpose slots model: P856-100/01 incl. full control panel	B‡
P856-400	P856 Basic System with 9 free general purpose slots models: P856-400/01 incl. full control panel P856-400/11 incl. extended control panel	B‡
P857-400	P857 Basic System with 8 free general purpose slots incl. extended control panel	A‡
P857-500	P857 Basic System with 15 free general purpose slots incl. extended control panel	A‡

Type Number	Description	Class
P858-400	P858 Basic System with 9 free general purpose slots incl. extended control panel	A‡
P858-500	P858 Basic System with 16 free general purpose slots incl. extended control panel	A‡
P859-400	P859 Basic System with 9 free general purpose slots incl. extended digital control panel	A
P870-256	P870 Basic System with 5 free general purpose slots incl. 4K 16-bit words of memory, sockets for 6K or 12K PROM	A
P870-356	P870 Basic System with 11 free general purpose slots incl. 4K 16-bit words of memory, sockets for 6K or 12K PROM models: P870-x56/11 incl. filter P870-x56/41 incl. filter and battery	A

Table 2: Basic system components

		P851	P852	P853 -x00	P853 -x57	P854	P856	P857	P858	P859	P870
Racks:	Eurorack	-100									
	6U6G rack	-200									
	6U6U rack			-200	-257						-256
	6U12 rack			-300	-357	-300					-356
	RU22 rack					-400					
	M1 box		-100				-100				
	M2 box		-200				-200				
	M4 box		-400				-400				
	M4M box							-400			
	M4P box								-400		
	M4R box									-400	
	M5 box							-500			
	M5P box								-500		
CPU's:	CP5Z-card	x									
	CPA-card		x								
	CP1L-card			x							
	CP1A-card				x						
	C7E1-, C7E2-, MIOP-cards (P857E-cards)					x					
	CP6B-card						x				
	CP7B-, MMU-cards							x			
	CP7R-card								x	x	
	SBCA-card										x

Table 3: **Basic system mounting codes and power characteristics**

Type Number	Free slots	Mounting code	power available (in Amp) logic +5V	-5V	+12V	-12V	+16V	+18V	-18V	memory +5V	+12V	+16V	Notes (app.1)	Class
P851-100	12	rack 6U	12.2		2.0	1.2				1.2	.9		1,32	A
P851-200	5	rack 6U	11.2		1.0	.5				1.5	.9		1,2,32	A
P852-100	3	rack 3U	10.3	.8			4.5	1.0	1.0				1,5,12,30,32	B*
P852-200	5	rack 3U	10.3	.8			4.5	1.0	1.0				1,5,12,30,32	B*
P852-400	9	rack 6U	35.3	2.0			9.0	2.0	2.0				1,5,12,30,32	B*
P853-200	5	rack 6U	11.8		1.5	.5				1.5	.9		2	A*
P853-257	5	rack 6U	11.2		1.4	.5				.8	.4		2	A*
P853-300	11	rack 6U	25.8		3.0	1.0				1.5	.9		2,4	A*
P853-357	11	rack 6U	25.2		2.9	1.0				.8	.4		2,4	A*
P854-300	9	rack 6U	19.2		2.9	1.0				1.5	.9		3,4	A
P854-400	20	rack 12U	31.2		1.4	1.0				2.5	1.4		3,31	A
P856-100	3	rack 3U	8.3	.8			4.5	1.0	1.0				1,5,12,30,32	B*
P856-400	9	rack 6U	33.2	2.0			9.0	2.0	2.0				1,5,12,30,32	B*
P857-400	8	rack 6U	29.6	2.0			9.0	2.0	2.0				1,5,8,12,30,33	A*
P857-500	15	rack 11U	72.6	4.0			18.0	4.0	4.0				1,5,8,12,30,33	A*
P858-400	9	rack 6U	30.4	2.0			9.0	1.7	1.9				1,5,8,30,33	A*
P858-500	16	rack 11U	73.4	4.0			18.0	3.7	3.9				1,5,8,30,33	A*
P859-400	9	rack 6U	48.8	1.5				1.7	1.9	8.0		3.0	1,3,5,8,34	A
P870-256	5	rack 6U	11.6		1.5	.5				1.1	.8		2,10,11	A
P870-356	11	rack 6U	25.6		3.0	1.0				1.1	.8		2,10,11	A

Remark: The number of U(nits) denotes the height of the rack.
Standard 19" cabinets exist with a height of either 33U or 24U. Of all equipment to be mounted in the cabinet, mentioned in this catalogue, the height in units is given. Loose panels with heights of 1U, 3U, 5U or 7U are available to close the cabinet.
1U is 1.75" (44.45 mm).

Table 4: P800 Mounting Box lay-out

Not all slots in the mounting boxes are general purpose slots. Some of them can only be used for specific cards. In the first part of the table below some types of slots (a,b,c,d e f and g) are defined and it is indicated which cards can be fitted in which types of slots. In the second part of the table a summary is given of the types of slots available in the basic systems.

type of card that fits in type of slot indicated	type of slot: a	b	c	d	e	f	g
CPU-card	x						
memory-card		x	x	x		x	
I/O-processor / DMA-CU		x			x		x
I/O-control card		x		x	x		
Floating Point Processor			x				

slot number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Basic System																							
P851-100	d	d	d	d	d	d	d	d	d	d	d	b	a										
P851-200	d	d	d	d	b	a																	
P852-100	a	f	b	b																			
P852-200	a	f	b	b	b	b																	
P852-400	a	f	b	b	b	b	b	b	b	b													
P853-200	a	b	b	b	b	b																	
P853-257	a	e	e	e	e	e																	
P853-300	a	b	b	b	b	b	b	b	b	b	d	d											
P853-357	a	e	e	e	e	e	e	e	e	e	g	g											
P854-300	a	a	a	c	c	b	b	b	b	b	b	b											
P854-400	a	a	a	c	c	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
P856-100	a	f	b	b																			
P856-400	a	b	b	b	b	b	b	b	b	b													
P857-400	a	a	c	b	b	b	b	b	b	b													
P857-500	a	a	c	b	b	b	b	b	b	b	b	b	b	b	b	b	b						
P858-400	a	c	b	b	b	b	b	b	b	b													
P858-500	a	c	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b						
P859-400	a	c	b	b	b	b	b	b	b	b													
P870-256	a	e	e	e	e	e																	
P870-356	a	e	e	e	e	e	e	e	e	e	e	e											

Chapter 2 Memories

In the P800-series three groups of memories exist:

MOS-memories on double Euro-cards for the P851, P853 and P854
MOS-memories on Belier cards for the P856, P857 and P859
Core memories on Belier cards for the P852, P856, P857 and P858.

All memories require one general purpose slot in the basic system.
Memories of the same type (same card format, same cycle and access times) can be combined in one basic system within the addressing possibilities of that system. Memories can be ordered by the type numbers mentioned in the tables below, followed by the description "memory module ..k".

MOS-memories on double Euro-cards

Type number	Capacity	max.acc. time(us)		Power consumption (in Amp) +5VL	+12VL	+5VM	+12VM	Applicable system		Class	Remarks
P851-004	4k16	GPBS	.54	op .4		.4	.3	1	3	A*	
				nop .4		.4	.05				
P851-005	8k16	GPBS	.48	op .4		.4	.3	1	3	A*	
				nop .4		.4	.07				
P851-016	16k16	GPBS	.56	op .53		.5	.51	1	3 4	A	
		UPL	.65	nop		.5	.09				
P851-017	32k16	GPBS	.56	op .53		.5	.55	1	3 4	A	
		UPL	.65	nop		.5	.13				
P844-004	2k16	UPL	.64	1.2	.035			1	3 4	A*	RAM CMOS memory with battery
P844-016	8k16	UPL	.64	1.4	.035			1	3 4	A	included on the card
P844-061				2.3	1.2				4	A*	Master to control maximally 8 slaves P844-128
P844-128	64k21	UPL	.61	op 0.4		.17	.65		4	A*	Slave memory
				nop 0.4		.15	.25				
P843-608	128k21	UPL	.35	op 1.35		1.20			4	X	
				nop 1.35		.65					

(continued on next page)

For power consumption calculations one module must be assumed operating (op), the others non-operating (nop)

MOS-memories on double Euro-cards (continued)

Type number	Capacity	max.acc. time(us)	Power consumption (in Amp) +5VL +12VL +5VM +12VM	Applicable system	Class	Remarks
P851-008	4k16		package dependent	1 3	B*	reprogrammable read-only memory (REPROM), unprogrammed
P851-010	16k16		package dependent	1 3 4	A*	card for EPROM chips type 2716 delivered without chips
P851-012	32k16		package dependent	1 3 4	A	card for EPROM chips type 2732 or 2732A, del. without chips
P843-012	---		1.45+ .45+ nx0.065 (n-2)x0.01	1 3 4	A	progr. tool for P851-010/012 n=number of EPROM-chips
P851-029	4k16		package dependent	1 3	A*	card for REPROM chips type 2708, delivered without chips

MOS-memories on Belier cards

Type Number	Capacity	max.acc. time(us)	Power consumption (in Amp)	5VL	5VM	16VM	Applicable system	Class	Remarks
P843-432	32k21	.45	operating	2.8	1.75	.8	6 7 9	A	
			non-oper.	2.8	1.75	.45			
P843-464	64k21	.45	operating	2.8	1.9	.9	7 9	A	For power consumption calculations one card can
			non-oper.	2.8	1.9	.5			
P843-528	128k21	.45	operating	2.8	2.0	1.0	7 9	A	be assumed operating, the
			non-oper.	2.8	2.0	.65			others non-operating
P843-529	128k21	.35	operating	2.8	2.05.	1.0	7 9	A	
			non-oper.	2.8	2.05	.65			

Core memories on Belier cards

Type number	Capacity	access time(us)	Power consumption (in Amp)	+5V	-5V	16V	Applicable system	Class	Remarks
P843-216	16k16	.3	operating	3.2	.18	4.7	2 6 7 8	A*	For power consumption
			non-oper.	2.7	.18	.7			calculations one card can
P843-232	32k16	.3	operating	4.5	.3	4.7	2 6 7 8	A*	be assumed operating, the
			non-oper.	4.0	.3	.7			others non-operating

Battery back-up times

Eurorack	32k16 MOS memory	1.5 hours
6U6U/6U66	32k16 MOS memory	2.0 hours
6U12	each of the two batteries has a capacity of	
	32k16 MOS memory	2.0 hours
M1/M2/M4/M4M/M5	128k21 MOS memory	60 minutes
M4R	128k21 MOS memory	60 minutes
	256k21 MOS memory	30 minutes
	512k21 MOS memory	10 minutes
RU22	32k16 MOS memory	6.0 hours
	64k16 MOS memory	3.0 hours
	128k16 MOS memory	1.3 hours
	128k21 master/slave	1.5 hours
	256k21 master/slave	1.1 hours
	512k21 master/slave	.3 hours

Chapter 3 Basic system options and accessories

Type number	Description	Applicable system	Class
	I/O-processors		
P851-020	I/O-processor (IOPZ) High speed multiplex data channel. Automatic control of data exchange on cycle stealing basis. Requires 1 memory cycle per data transfer. Maximum throughput 300k words/sec. 8 subchannels standard. Mounting code: 1 slot. Power consumption: +5V/1.1A	1	A
P843-120	Single I/O-processor (IOPZR) High speed multiplex data channel. Automatic control of data exchange on cycle stealing basis. Requires 1 memory cycle per data transfer. Maximum throughput 450k words/sec. 8 subchannels standard. Mounting code: 1 slot. Power consumption: +5V/3.2A	3 4	A
P843-020	I/O-processor (IOP) High speed multiplex data channel. Automatic control of data exchange on cycle stealing basis. Requires 1 memory cycle per data transfer. Maximum throughput 830k words/sec. 8 subchannels standard. Addressing range 128kw. Includes 3.0 m break-lines cable. Mounting code: 1 slot. Power consumption: +5V/2.9A	2 6 7 8 9	A
	Clocks		
P843-165	Digital clock card (DCCZ) Counts seconds, minutes, hours and days (max. 100 days) with program control preset and 8 digits display facility. Battery powered. Mounting code: 1 slot. Power consumption: +5VL/1.15A; +5VM/0.235A	1 3 4	B‡
P843-160	Programmable real time clock (RTCZ) Crystal controlled. Period range between 1 ms and 32 sec (selected by software) or standard rate 1 ms - 5 ms - 10 ms - 20 ms (selected by hardware). Mounting code: 1 slot. Power consumption: +5V/0.9A	1 3 4	A‡
P843-060	Programmable real time clock (PRTC) Mounting code: 1 slot. Power consumption: +5V/0.9A	2 6 7 8 9	A‡

Type number	Description	Applicable system	Class
	Initial program loaders		
P843-053	General purpose initial program loader Bootstrap. Excl. ASR and ROM. Mounted in sockets on CPU-card.	1 2	A
P843-054	General purpose initial program loader Bootstrap. Excl. discs and floppy. Mounted in sockets on CPU-card. When ordered with the system it replaces the standard IPL.	1 2	A
	Operator control panels and associated items		
P851-032	Full control panel Includes extender and cable. To be used with cover plate P851-049. Mounting code: 2U. Power consumption: +5V/1.3A	1	B‡
P851-034	Control panel interface for hand held control panel Inclusive adaptation card and cable, 5m	1	B‡
P851-049	Central processor cover plate Associated with full control panel P851-032. Mounting code: 4U.	1	A‡
P851-048	Central processor front cover To be used when no full control panel P851-032 is requested. Mounting code: 6U.	1	A‡
P852-030	Minipanel Interchangeable with full control panel. Power consumption: +5VL/0.4A	2	B‡
P856-032	Extended control panel Includes stop on preset address facility. Power consumption: +5V/2.6A	6	B‡
P843-500	Hand held control panel (HHCP) Power consumption: +5VL/0.3A; +12VL/0.2A; -12VL/0.02A	1 3 4	A
P843-501	Basic system front cover With place and lock mechanism for hand held control panel. Includes cable between front cover and CPU. Mounting code: 4U.	3 4	A
P843-502	Basic system front cover Mounting code: 6U.	3 4	A
P843-503	Basic system front cover To be used when no control panel is desired. Mounting code: 4U.	3 4	A

Type number	Description	Applicable system	Class
P843-510	Digital extended control panel (FRCP) Inclusive cable between control panel and CPU. Mounting code: 4U. Power consumption: +5VL/0.9A; +12VL/0.17A; -12VL/0.025A	4	A
P843-550	Cable between basic system front cover and hand held control panel. 7 m	1 3 4	A
P843-551	Cable between basic system front cover and hand held control panel. 3 m	1 3 4	A
P843-552	Cable between CPU and hand held control panel. 3 m	3 4	A

BUS-translators

P843-107	Translator card (IOTZ) to adapt the P851 bus to the general purpose bus of the P856/7/8/9. Mounting code: 1 slot. Power consumption: +5VL/1.8A	1	A
P843-117	BUS-translator (TUGP) to adapt the P853/4 bus to the general purpose bus of the P856/7/8/9. Mounting code: 1 slot. Power consumption: +5VL/1.5A See note 28 (appendix 1).	3 4	A

Battery packs

P851-046	Battery pack for power supply back-up during power failures. Capacity 2 AH. Charging time 48 hours. Mounting code: dedicated slot in P851-100	1	A
P843-005	Equipment shelf With battery pack for power supply bach-up during power failure. Capacity 4AH. Charging time 48 hours. Voltage +5V. Including cable 3m. Mounting code: rack 2U	2 6 7	B‡

Type number	Description	Applicable system	Class
	Miscellaneous		
P854-020	Floating point processor (FPPE) Performs high speed arithmetic operations on 48-bit operands. Mounting code: 2 slots. Power consumption: +5VL/4.45A.	4	A
P857-020	Floating point processor (FPP) Performs high speed arithmetic operations on 48-bit operands. Mounting code: 1 slot. Power consumption: +5V/6A	7 8 9	A
P851-050	Cable support rack and panel Mounting code: 1U	1 3 4	A
P843-200	Ventilation unit Included as standard in P854-400. Mountable with P853 and P854-300 to ensure forced cooling of the rack. Mounting code: rack 3U.	3 4	A‡
P843-400	Power supply module (PSUB) to extend the power available in P854-400 configurations. Power available: +5VL/20A; +12VL/1.5A; -12VL/1A	4	A
P843-402	Power supply module (PSUM) to extend the power available in P854-400 configurations. Power available: +5VM/2.5A; +12VM/1.4A	4	A

Chapter 4 P870 Single Board Computer

Type number	Description	Class
P870-001	Single Board Computer (SBC) CPU based on SP16C microprocessor General Purpose Bus, unified or simplified Interrupt handling Standard P800 instruction set Bit-handling instructions Addressing facility for up to 32k 16-bit words Sockets for 6k or 12k 16-bit words of PROM, type 2716 or 2732 4k 16-bit words of RAM standard Possibility to disconnect the on-board memory and to connect 32k 16-bit words of external memory through the bus Digital Input/Output (32 lines) 3 counter timers Serial V24 or current loop interface for asynchronous transmission Real time clock Power failure/automatic restart Interface to control panel through extension card Automatic start-up and possibility of on-board sequencing Double Euro-card format Power consumption: +5VL/2.4A; +5VM/0.6A; +12VL/0.05A; -12VL/0.03A See notes 10, 11 (appendix 1). models: P870-001/01 gold plated sockets P870-001/02 tin plated sockets	A
P870-200	Development tool Including rack and power supply with filter, SBC card, TSBC card, hand held control panel and 4 general purpose slots. Mounting code: rack 6U. Power available: +5VL/9.6A; +5VM/0.9A; +12VL/1.25A; +12VM/0.9A; -12VL/0.45A See note 10 (appendix 1)	A
P870-201	Card cage and PC back panel with bus for 4 slots	A‡

Type number	Description	Class
P870-256	P870 Basic system with SBC-card, rack with 5 free general purpose slots and power supply Mounting code: rack 6U. Power available: +5VL/11.6A; +5VM/0.9A; +12VL/1.45A; +12VM/0.9A; -12VL/0.45A See notes 2, 10, 11 (appendix 1).	A
P870-356	P870 Basic system with SBC-card, rack with 11 free general purpose slots and power supply Mounting code: rack 6U. Power available: +5VL/25.6A; +5VM/0.9A; +12VL/2.95A; +12VM/0.9A; -12VL/0.95A See notes 2, 10, 11 (appendix 1). models: P870-x56/11 incl. filter P870-056/41 incl. filter and battery	A
P870-570	SBC Testtool (TSBC) Supports the functions of the hand held control panel including the preset address facility. Includes cable 0.5 m Mounting code: 1 slot. Power consumption: +5VL/1.7A; +12VL/0.04A; -12VL/0.04A	A

Chapter 5 Peripheral equipment and peripheral controllers

Type number	Description	Applicable system	Class
	Punched tape equipment		
P801-001	Punched tape reader 333 cps Digitronics type 2540 EP. Mounting code: rack 3U To be connected via CU P840-001, P840-002, P840-141, P801-040 or P801-140 models: P801-001/22 incl. 3m cable and connector for Belier system P801-001/23 incl. 7.5m cable and connector for Belier system P801-001/32 incl. 3m cable and connector for Euro system P801-001/33 incl. 7.5m cable and connector for Euro system	2 6 7 8 9 2 6 7 8 9 1 3 4 1 3 4	A1
P803-001	Tape punch 75 cps Facit type 4070. Mounting code: rack 6U To be connected via CU P840-001, P840-002 or P840-141 models: P803-001/22 incl. 3m cable and connector for Belier system P803-001/23 incl. 7.5m cable and connector for Belier system P803-001/32 incl. 3m cable and connector for Euro system P803-001/33 incl. 7.5m cable and connector for Euro system	2 6 7 8 9 2 6 7 8 9 1 3 4 1 3 4	A1
P840-002	Control unit PTR/PTP/V24 (MCU3) For punched tape reader P801-001, tape punch P803-001 and V24 devices Mounting code: 1 slot. Power consumption: +5V/2.8A; +18V/0.025A; -18V/0.04A See note 14 (appendix 1)	2 6 7 8 9	A
P840-141	Control unit PTR/PTP (TRPZ) For punched tape reader P801-001 and tape punch P803-001. Mounting code: 1 slot. Power consumption: +5VL,1.2A See note 14 (appendix 1)	1 3 4	A

Type number	Description	Applicable system	Class
	Card equipment, Line printer equipment		
P806-102	Card reader 300 cpm Documation type M300. Table top To be connected via control unit P840-003 or P840-103 models: P806-102/21 incl. 7.5m cable and connector for Belier system P806-102/31 incl. 7.5m cable and connector for Euro system	2 6 7 8 9 1 3 4	A*
P809-002	Matrix line printer 200 lpm 132 columns, 64 character set, Data Products interface. Philips type X1415. Free standing. To be connected via control unit P840-003, P840-103 or P810-040		B*
P809-003	High resolution matrix line printer 300 lpm 132 columns, 96 character set, up to 160 different characters can be printed using extended 64 character set, double height characters, plot mode, underlined characters, 6 or 8 lpi, electronic VFU, single part to 6-part forms, Data Products interface. Printronix type 300. Free standing. To be connected via control units P840-003, P840-103 or P810-040 models: P809-003/21 incl. 5m cable and connector for Belier system P809-003/31 incl. 5m cable and connector for Euro system	2 6 7 8 9 1 3 4	X
P809-004	Matrix line printer 400 lpm Same characteristics as P809-002. Philips type X1425.		A*
P809-006	High resolution matrix line printer 600 lpm Same characteristics as P809-003. Printronix type 600. models: P809-00x/21 incl. 5m cable and connector for Belier system P809-00x/31 incl. 5m cable and connector for Euro system		X
P840-103	Control unit CR/LP (CRLPZ) For card reader P806-102 and matrix lineprinters P890-002/003/004. Data Products interface compatible. Mounting code: 1 slot. Power consumption: +5V,1A. See notes 14,15 (appendix 1)	1 3 4	A
P840-003	Control unit CR/LP For card reader P806-102 and matrix lineprinters P809-002/003/004. Data Products interface compatible. Mounting code: 1 slot. Power consumption: +5V,1.7A. See notes 14,15 (appendix 1)	2 6 7 8 9	A
P810-040	Control unit LP For matrix lineprinters P809-002/003/004. Data Products interface compatible. Mounting code: 1 slot. Power consumption: +5V/0.7A See note 14 (appendix 1)	2 6 7 8 9	B*

Type number	Description	Applicable system	Class

V24 interface equipment

P842-001 Character printer — Class A
50 cps, 110 columns, V24 interface. With keyboard.
Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with V24 asynchronous interface.

P842-002 Character printer — Class B*
50 cps, 110 columns, current loop interface. With keyboard.
cable. Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with current loop interface.

P842-003 Character printer — Class B*
50 cps, 110 columns, V24 interface. Without keyboard.
Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with V24 asynchronous interface.

P842-004 Character printer — Class B*
50 cps, 110 columns, current loop interface. Without keyboard.
Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with current loop interface.

P842-005 Character printer — Class B*
50 cps, 110 columns, V24/V21 modem interface. With keyboard.
Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with V24 asynchronous interface.

P842-006 Character printer — Class B*
50 cps, 110 columns, V24/V21 modem interface. Without keyboard.
Philips type PER 3100. Free standing. Power supply selfcontained.
To be connected via any control unit or CPU with V24 asynchronous interface.

models (x=1,3,5 or 6; y=2 or 4):

	Applicable system
P842-00x/23 incl. 7.5m cable and connector for P856/7/8/9 CPU	6 7 8 9
P842-00x/24 incl. 7.5m cable and connector for serial Belier CU	2 6 7 8 9
P842-00x/33 incl. 7.5m cable and connector for serial Euro CU (SCUZ)	1 3 4
P842-00x/34 incl. 7.5m cable and connector for serial Euro CU (ASCU4Z)	1 3 4
P842-00x/41 incl. 7.5m cable and connector for P854 CPU	4
P842-00x/51 incl. 5m cable and connector for panel V24	
P842-00y/23 incl. 7.5m cable and connector for P852 CPU	2
P842-00y/33 incl. 7.5m cable and connector for curr.loop Euro CU (SCUZ)	1 3 4
P842-00y/51 incl. 5m cable and connector for panel TTY	

Type number	Description	Applicable system	Class
P842-200	Matrix character printer max. speed 300 cps, max. paperwidth 340 mm, char.pitch 10/12/15 cpi and proportional, matrix 9x9,18x25,18x50 and 36x50. Table top. Philips type GP300		X
P816-010	Video display terminal Asynchronous, 96 character set, 24 lines of 80 characters, dual intensity, cursor addressing, 12 inch screen, white (P4) characters, blinking, blanking, underlining, hardcopy facility, hardware/software selectable functions, character mode transmission, V24 interface, video outlet port, power supply 100-240 V, 50/60 Hz. Table top. See note 22 (appendix 1)		X
P816-011	Video display terminal Identical to P816-010, but green (P31) characters		X
P816-020	Video display terminal With all functions of the P816-010, but including blockmode transmission, split screen facility, read/write line, read/write straps and editing functions Table top. See note 22 (appendix 1)		X
P816-021	Video display terminal Identical to P816-020, but green (P31) characters		X
P818-010	Video display terminal Identical to P816-010, but 15 inch screen		X
P818-011	Video display terminal Identical to P816-010, but 15 inch screen and green (P31) characters		X
P818-020	Video display terminal Identical to P816-020, but 15 inch screen		X
P818-021	Video display terminal Identical to P816-020, but 15 inch screen and green (P31) characters		X
P818-051	Alphanumeric keyboard TTY oriented, including control keys and cable, for P816-010/011 and P818-010/011		X
P818-052	Alphanumeric keyboard including numeric pad, function keys, indicator lights and cable, for P816-020/021 and P818-020/021		X
P818-100	Plug-in current-loop interface 20, 40, 60 mA, with/without current source. Mounting code: 1 slot in P816/8 To be connected to AMA8C P845-070.		X

Type number	Description	Applicable system	Class
P818-120	Swivel stand for P816/8. Table top.		X
P818-500	Hardcopy printer Thermal matrix printer, 240 lpm, 80 columns. Table top. Philips type COPY80		X
P815-100	Work station for industrial applications (WSIA) including as standard: - single board computer P870-100 - controlling card (CWSIA) to interface all I/O devices that have integrated in the terminal: keyboard, line display, buzzer, bar-code reading facility, BCD digital inputs and V24 current loop port - 4-slot self-powered rack with 2 free slots for extension - ruggedized table-top steel cabinet		X
P815-011	Optical wand connectable to WSIA to read bar-code.		X
P845-140	Control unit for serial data transfer (SCU2) Interface according to CCITT recommendations V24 and V28 or current loop (TTY), speed selectable from 110, 150, 300, 600, 1200, 2400, 4800 and 9600 bits/sec. Mounting code: 1 slot. Power consumption: +5VL/0.5A; +12VL/0.025A; -12VL/0.045A See note 14 (appendix 1)	1 3 4	A
P845-145	Control unit for serial data transfer (ASCU4Z) Interface according to CCITT recommendations V24 and V28, for 4 half-duplex or 2 full-duplex asynchronous local connections, speed selectable from 110, 150, 200, 300,600, 1200, 2400, 4800 and 9600 bits/sec. Mounting code: 1 slot. Power consumption: +5V/1.75A; +12V/0.05A; -12V/0.03A See note 14 (appendix 1)	1 3 4	A
P845-040	Control unit for serial data transfer (SECU) Interface according to CCITT recommendations V24 and V28, speed selectable from 110, 150, 200, 300, 600, 1200, 2400, 4800 and 9600 bits/sec. Mounting code: 1 slot. Power consumption: +5V/1.9A; +18V/0.025A; -18V/0.04A See note 14 (appendix 1)	6 7 8 9	A1

Type number	Description	Applicable system	Class
	Disc equipment		
P824-012	Moving head disc drive One fixed and one removable cartridge (IBM 5440, 16 sector type), 2x2.7M 8-bit characters, 2400 rpm, 100 tracks/inch, 12.5 msec latency, average access time 33 msec, data transfer rate 2.5M bps, power failure/automatic restart, telescopic slides. Philips type X1215. Mounting code: rack 6U. Power supply selfcontained. Excl. cartridge To be connected via control unit P824-040 or P824-140. See note 1 (appendix 1)		B*
P824-014	Moving head disc drive One fixed and one removable cartridge (IBM 5440, 16 sector type), 2x5.4M 8-bit characters, 2400 rpm, 200 tracks/inch, 12.5 msec latency, average access time 33 msec, data transfer rate 2.5M bps, power failure/automatic restart, telescopic slides. Philips type X1216. Mounting code: rack 6U. Power supply selfcontained. Excl. cartridge To be connected via control unit P824-040 or P824-140. See note 1 (appendix 1)		A*
	models: P824-01x/21 incl. 7.5m cable and connector for Belier system	2 6 7 8 9	
	P824-01x/22 incl. 3.5m cable and connector for Belier system	2 6 7 8 9	
	P824-01x/23 incl. 7.5m cable and connector for Euro system	1 3 4	
	P824-01x/24 incl. 3.5m cable and connector for Euro system	1 3 4	
P824-100	Cartridge for P824-012/014		A
P824-140	Control unit for up to 2 moving head disc drives P824-012/014 (CDDZ) To be connected via I/O-processor. See note 14 (appendix 1). Mounting code: 1 slot. Power consumption: +5VL/2.45A	1 3 4	A
P824-040	Control unit for up to 2 moving head disc drives P824-012/014 (CDD) To be connected via I/O-processor. See note 14 (appendix 1). Mounting code: 1 slot. Power consumption: +5V/4A	2 6 7 8 9	A
P824-080	Moving head disc drive P824-012 + control unit P824-040	2 6 7 8 9	B*
P824-090	Moving head disc drive P824-014 + control unit P824-040	2 6 7 8 9	A*
	models: P824-0x0/01 incl. 7.5m cable between drive and CU	2 6 7 8 9	
	P824-0x0/02 incl. 3.5m cable between drive and CU	2 6 7 8 9	
P824-180	Moving head disc drive P824-012 + control unit P824-140	1 3 4	B*
P824-190	Moving head disc drive P824-014 + control unit P824-140	1 3 4	A*
	models: P824-1x0/01 incl. 7.5m cable between drive and CU	1 3 4	
	P824-1x0/02 incl. 3.5m cable between drive and CU		

Type number	Description	Applicable system	Class
P825-008	Moving head cartridge disc drive Capacity 80M 8-bit characters, sector length by software control, average access time 30 msec, latency 8.33 msec, 3600 rpm, data transfer rate 9.67M bps, including 7 m cable, free standing quietized cabinet with power supply CDC type 9762 To be connected via control unit P825-040, P825-041 or P825-141. See note 21 (appendix 1). models: P825-008/03 1st drive, incl. 7m cable and connector for Belier system P825-008/13 2nd drive, incl. 7m cable and connector for Belier system P825-008/04 drive, incl. 7m cable and connector for Euro system	6 7 8 9 6 7 8 9 4	A
P825-200	Cartridge for P825-008 (CDC type 9877)		A
P825-011	Moving head disc drive 64M One fixed and one removable cartridge, removable capacity 16M bytes non formatted, fixed capacity 48M bytes non formatted, average access time 30 ms, latency 8.3 ms, 3600 rpm, data transfer rate 1.2 Mbps, free standing cabinet with power supply. CDC type 9448-64 To be connected via control unit P825-041 or P825-141		X
P825-012	Moving head disc drive 96M One fixed and one removable cartridge, removable capacity 16M bytes non formatted, fixed capacity 80M bytes non formatted, average access time 30 ms, latency 8.3 ms, 3600 rpm, data transfer rate 1.2 Mbps, free standing cabinet with power supply. CDC type 9448-96. To be connected via control unit P825-041 or P825-141 models: P825-01x/01 incl. 7.5m cable and connector for Belier system P825-01x/02 incl. 7.5m cable and connector for Euro system	7 8 9 4	X
P825-201	Cartridge for P825-011 and P825-012 (CDC type 91204)		X
P825-040	Control unit for up to 2 moving head cartridge disc drives P825-008 (CUBIGD) Including DMA-facility and data chaining of variable record length format. Mounting code: 1 slot. Power consumption: +5V/8; -5V/0.8A. See note 14 (appendix 1)	2 6 7 8 9	A*
P825-041	Control unit for up to 2 moving head disc drives P825-008/011/012 (BI6D2) Including DMA facility and data chaining of variable record length format. Mounting code: 1 slot. Power consumption: +5VL/4.9A; -5VL/0.8A See note 14 (appendix 1)	7 8 9	A

Type number	Description	Applicable system	Class
P825-141	Control card for up to 4 moving head disc drives P825-008/011/012 (DFP-C) Including DMA facility and data chaining of variable record length format. Mounting code: 2 slots. Power consumption: +5VL/8.4A; -5VL/0.7A See note 14 (appendix 1). Only for P854-400 models.	4	X
P827-001	Fixed head disc drive Capacity 5M 8-bit characters, average access time 10.2 msec, latency 42 msec, 720 rpm, data transfer rate 2M bps, including mounting box, power supply. Philips type X1250. Mounting code: rack 4U. To be connected via control unit P827-140. See note 21 (appendix 1). models: P827-001/11 rack with disc drive, without cable P827-001/12 rack with disc drive, with cable for 2 drives P827-001/14 rack with disc drive, with cable for 4 drives		A*
P827-140	Control unit for up to 2 fixed head disc drives P827-001 (CUMDD) I/O processor required. Mounting code: 1 slot. Power consumption: 5VL/2.8A	1 3 4	A*

Type number	Description	Applicable system	Class
	Floppy disc equipment		
P830-006	Floppy disc drive Capacity 256k 8-bit characters, IBM 3740 format. CDC type 9404. To be mounted in equipment shelf P830-010. To be connected via control unit P830-045, -050, -145 or -150. See note 18 (appendix 1).		A*
P830-015	Floppy disc drive Capacity 256k 8-bit characters, IBM 3740 format, with doorlock. CDC type 9404. To be mounted in equipment shelf P830-010. To be connected via control unit P830-045, -050, -145 or -150. See note 18 (appendix 1).		A
P830-025	Floppy disc drive Capacity 1M 8-bit characters, IBM 34-2 format. CDC type 9406 To be mounted in equipment shelf P830-010. To be connected via control unit P830-050 or P830-150. See note 18 (appendix 1).		A
P830-035	Floppy disc drive Capacity 1M 8-bit characters, IBM 34-2 format, with doorlock. CDC type 9406 To be mounted in equipment shelf P830-010. To be connected via control unit P830-050 or P830-150. See note 18 (appendix 1).		A
P830-100	10 diskettes for P830-006/015, IBM pre-formatted		A
P830-200	10 diskettes for P830-025/035, IBM pre-formatted		A
P830-145	Control unit for up to 4 floppy disc drives P830-006/015 (FLDZ) Mounting code: 2 slots. Power consumption: +5V/3.5A	1 3 4	B*
P830-045	Control unit for up to 4 floppy disc drives P830-006/015 (FLDB) Mounting code: 1 slot. Power consumption: +5V/4.7A	2 6 7 8 9	B*
P830-150	Control unit for up to 4 floppy disc drives P830-006/015 or up to 2 floppy disc drives P830-025/035 (F1MZ) Mounting code: 1 slot. Power consumption: +5VL/2.0A. I/O processor required.	1 3 4	A
P830-050	Control unit for up to 4 floppy disc drives P830-006/015 or up to 2 floppy disc drives P830-025/035 (F1MB) Mounting code: 1 slot. Power consumption: +5VL/2.3A. I/O processor required.	6 7 8 9	A

models control units for floppy disc drives:
P830-xxx/01 incl. cable for 2 floppy disc drives
P830-xxx/05 incl. cable for 4 floppy disc drives

Type number	Description	Applicable system	Class
P830-010	Equipment shelf for up to 2 floppy disc drives P830-006/015/025/035 Mounting code: rack 6U. Including power supply. When 3 or 4 floppy disc drives are connected to one control unit, 2 equipment shelves are needed. In case of extension CU cable 5111 199 71020 (1,3,4) or 5111 199 71970 (2,6,7,8,9) has to be ordered.	1 2 3 4 6 7 8 9	A

Type number	Description	Applicable system	Class
	Magnetic tape equipment		
P831-004	Magnetic tape unit 9 tracks, 45 ips, 800 bpi, 10.5 inch reels, read after write operation, recording method NRZI, IBM-compatible, including hinges for rack mounting and 3 m cable to formatter. Pertec type 6840/9,45 ips. Mounting code: rack 14U. Power supply selfcontained. To be connected via tape formatter P831-020 and control unit P831-060. See note 1 (appendix 1)		A‡
P831-006	Magnetic tape unit 9 tracks, 37.5 ips, 1600 bpi, 10.5 inch reels, read after write operation, recording method ANSI, Phase encoded, IBM-compatible, including hinges for rack mounting and 3 m cable to formatter. Pertec type 6640/9,37.5ips. MC: rack 14U. Power supply selfcontained. To be connected via tape formatter P831-030 and control unit P831-060. See note 1 (appendix 1) models: P831-00x/01 1st tape unit P831-00x/11 additional tape unit		A
P831-020	Formatter for up to 4 magnetic tape units P831-004 Including 1.5 m cable to control unit and telescopic slides. Pertec type F849-36/25.02. Mounting code: rack 2U. Power supply selfcontained. See note 1 (appendix 1)		A‡
P831-030	Formatter for up to 4 magnetic tape units P831-006 Including 1.5 m cable to control unit and telescopic slides. Pertec type F649-60,30.5/1600. Mounting code: rack 2U. Power supply selfcontained. See note 1 (appendix 1)		A
P831-060	Control unit for up to 4 magnetic tape units P831-004/006 (MTCU) Mounting code: 1 slot. Power consumption: +5V/2.7A Can be used in Euro-systems with BUS-translator P843-107 (P851) or P843-117 (P853/4) and extension shelf P843-001. See note 17 (appendix 1)	2 6 7 8 9	A

Type number	Description	Applicable system	Class
	Cassette tape equipment		
P833-002	Cassette tape drive unit 7.5 ips, 800 bpi. Philips type ELA DCR3. To be mounted in and connected via control unit P833-152. Power consumption: +5V/0.5A; +24V/1.5A supplied by control unit. See note 1 (appendix 1)		A1
P833-100	Pack of 10 tape cassettes for P833-002		A1
P833-152	Shelf for up to 3 cassette tape drive units P833-002 Including control unit, CRC feature, power supply and 3 m cable. Mounting code: rack 4U. See note 17 (appendix 1). Can be used in Euro-systems with BUS-translator P843-107 (P851) or P843-117 (P853/4).	2 6 7 8 9	A1

Chapter 6 Data communication controllers

Type number	Description	Applicable system	Class
P845-160	Control unit for 1 synchronous or 1 asynchronous line (SALCUZ) full duplex or half duplex connection, transmission speed selectable: asynchronous 110, 200, 300, 600, 1200, 2400, 4800, 9600 bps synchronous 1200, 2400, 4800, 9600, 19200 bps Mounting code: 1 slot. Power consumption: +5VL/1.5A; +12VL/0.05A; -12VL/0.09A See notes 14, 19 (appendix 1)	1 3 4	A
P845-170	Control unit for 1 synchronous line (SLCUZ) full duplex or half duplex connection, transmission speed up to 4.8K bps in full duplex mode and 9.6K bps in half duplex mode. Special character recognition. CRC/VRC/LRC generation and check. Remote control of modem loops (2,3,4). Interface according to V24/V28 recommendations. Mounting code: 1 slot. Power consumption: +5VL/1.9A; +12VL/0.06A; -12VL/0.045A See notes 14,19,28 (appendix 1)	1 3 4	A
P845-100	Control unit for high level data link procedure (HLCUZ) for 1 half duplex or 1 full duplex connection up to 100,000 bps inplant and 20,000 bps outplant with interface according to CCITT V24/V28 recommendations. Control unit using frame structures according to HDLC/SDLC standards. Mounting code: 1 slot. Power consumption: +5V/2.0A; +12VL/0.03A; -12VL/0.03A See notes 14, 19 (appendix 1)	1 3 4	A‡
P845-110	Control unit for high level data link procedure (HLVCUZ) for 1 half duplex or 1 full duplex connection up to 100,000 bps inplant and 20,000 bps outplant with interface according to CCITT V24/V28 recommendations. Control unit using frame structures according to HDLC/SDLC standards. Including facilities such as control of modem loops (2,3,4) and automatic address field detection. Mounting code: 1 slot. Power consumption: +5VL/2.5A; +12VL/0.05A; -12VL/0.05A See notes 14, 19 (appendix 1)	1 3 4	A
P847-060	Multiple control unit (SLCU2S) for 2 half duplex or 1 full duplex synchronous line connections up to 200,000 bps inplant and 20,000 bps outplant, with interface according to CCITT V24/V28 recommendations. Special character recognition, CRC-VRC generation and check. Mounting code: 1 slot. Power consumption: +5V/4A; +18V/0.08A; -18V/0.16A See notes 14, 19 (appendix 1)	2 6 7 8 9	A

Type number	Description	Applicable system	Class
P847-070	Multiple control unit (SLCU4) for 4 half duplex or 2 full duplex synchronous line connections up to 100,000 bps inplant and 9600 bps outplant, with interface according to CCITT V24/V28 recommendations. Mounting code: 1 slot. Power consumption: +5V/4A; +18V/0.16A; -18V/0.25A. See note 14 (appendix 1)	2 6 7 8 9	B‡
P847-100	Control unit for high level data link procedures (HLCU1) for 1 half duplex or 1 full duplex connection up to 100,000 bps inplant and 20,000 bps outplant, with interface according to CCITT V24/V28 recommendations. Control unit using frame structures according to HDLC/SDLC standard. Mounting code: 1 slot. Power consumption: +5V/4.0A; +18V/0.16A; -18V/0.25A See notes 14, 19 (appendix 1)	2 6 7 8 9	B
P847-110	Control unit for high level data link procedures (HLVCU-B) for 2 half duplex or 2 full duplex connections up to 100,000 bps inplant and 20,000 bps outplant, with interface according to CCITT V24/V28 recommendations. Control unit using frame structures according to HDLC/SDLC standard. Including facilities such as control of modem loops (2,3,4) and automatic address field detection. Mounting code: 1 slot. Power consumption: +5VL/4.5A; +18VL/0.1A; -18VL/0.1A See notes 14, 19 (appendix 1)	2 6 7 8 9	A
P846-060	Multiple control unit (ALCU2) for 2 half duplex or 1 full duplex asynchronous line connections 300 to 9600 bps with interface according to CCITT V24/V28/V23 recommendations. Mounting code: 1 slot. Power consumption: +5V/3A; +18V/0.06A; -18V/0.09A See note 14 (appendix 1)	2 6 7 8 9	B‡
P846-070	Multiple control unit (ALCU4) for 4 half duplex or 2 full duplex asynchronous line connections 300 to 9600 bps with interface according to CCITT V24/V28/V23 recommendations. Mounting code: 1 slot. Power consumption: +5V/4A; +18V/0.12A; -18V/0.18A See note 14 (appendix 1)	2 6 7 8 9	A
P845-060	Asynchronous medium speed line multiplexor (AMA8A) for 8 full duplex or half duplex connections 50 to 9600 bps with interface according to CCITT V24/V28 recommendations. Mounting code: 1 slot: Power consumption: +5V/5A; +18V/0.24A; -18V/0.36A See note 14 (appendix 1)	2 6 7 8 9	A

Type number	Description	Applicable system	Class
P845-070	Asynchronous medium speed line multiplexor (AMA8C) for 8 asynchronous line connections 50 to 9600 bps with current loop interface or TTL interface. Does not provide line current. Mounting code: 1 slot. Power consumption: +5V/4.5A; -18V/0.1A See note 14 (appendix 1)	2 6 7 8 9	A
P844-110	Control module (V28LCM) for 64 lines (32 in, 32 out) with interface level according to CCITT V24/V28 recommendations. Mounting code: 1 slot. Power consumption: +5V/1.8A; +18V/0.2A; -18V/0.2A See note 14 (appendix 1)	2 6 7 8 9	B*

Chapter 7 Miscellaneous controllers

Type number	Description	Applicable system	Class
P843-180	Dual processor communication subsystem - high speed link between two P800 systems using full duplex communication channels for transfer of single words or of blocks of words - bus switch under either program or manual control allows one or more peripherals to be switched from one system to another - watch dog timer feature allows each system to control the functioning of the other one by means of two sets of double timers (mini/maxi) - mounting box - power supply - operator panel - space for 7 I/O-cards - 2 general purpose bus cables 3 m (other lengths on request) - telescopic slides Breakline cable P843-031 required Mounting code: rack 6U. Power consumption: +5V/37.5A; +18V/2A; -18V/2A See notes 12, 13 (appendix 1)	2 6 7 8 9	B*
P837-002	Digital input/output control unit (DIOD-2) for 2 16-bit input words and 2 16-bit output words, incl. level adaptation, excl. connectors. TTL compatible. MC: 1 slot. PC: +5V,3.5A for input only/ 5.3A for input and output. Various cards supplying digital I/O, A/D- or D/A-conversion are offered by the MIOS6-system. This system can be interfaced to any computer of the P800 family. More information on this system can be obtained from S&I-Eindhoven	2 6 7 8 9	A*

Chapter 8 Miscellaneous hardware

Type number	Description	Applicable system	Class
	Extenders and adaptors		
P843-009	Terminator To be used in equipment connected to the end of the GP-bus, e.g. P843-001. Power consumption: +5V/0.9A		A
P843-115	General purpose bus cable with connectors models: P843-115/01 3m P843-115/03 5m		A
P843-031	Extension break lines cable models: P843-031/01 3m P843-031/03 5m		A
	Equipment shelves		
P843-001	Equipment shelf Space for 6 I/O-cards, including power supply +5V/18A; +18V/1A; -18V/1A, telescopic slides, bus cable 3 m, and bus connector. When connected to the end of the GP-bus a terminator P843-009 must be added. When used with a Euro-system a bus-translator P843-107/117 is necessary. Mounting code: rack 3U. See notes 1, 23 (appendix 1)	1 2 3 4 6 7 8 9	A
P843-005	Equipment shelf With battery pack for power supply back-up during power failure. Capacity 4 AH. Charging time 48 hours. Voltage +5V. Including cable 3 m. Mounting code: rack 2U.	2 6 7	B*
P830-010	Equipment shelf for floppy disc drives. See page 5.10	1 2 3 4 6 7 8 9	A
	Cards and connectors		
P843-025	General purpose card with general purpose bus logic Includes male connectors for bus and device connection. Space for 125 (14,16 pins) dual in-line packages and 2 (24,40 pins) dual in-line MSI, LSI packages. This card allows the design of a control unit by the customer. For connection of a device a female connector must be used. Mounting code: 1 slot. Power consumption: design dependent. See note 24 (appendix 1)	2 6 7 8	B*

Type number	Description	Applicable system	Class
P843-125	General purpose card with bus control logic Includes male connectors for bus and device connection. This card allows the design of a control unit by the customer. Mounting code: 1 slot. Power consumption: design dependent.	1 3 4	B
P843-026	General purpose card Blank card with space for 226 (14,16 pins) dual in-line packages and 15 (24,40 pins) dual in-line MSI, LSI packages. Includes male connectors for bus and device connection. Mounting code: 1 slot. Power consumption: design dependent. See note 24 (app 1)	2 6 7 8 9	B*
P843-021	Set of 10 female connectors with 74 points for connection of a device cable to an I/O card (GP-card, Digital I/O card)		A
P843-022	Set of 10 female connectors with 26 points for connection of a device cable to an I/O card (GP-card, Digital I/O card)		A
P843-027	Set of 10 emitter/receiver packages Required for customer designing an interface to the GP-bus of the P800		B*
P843-028	Set of 10 Ternet packages Required for customer design, for the termination of the GP-bus of the P800		B*
P849-940	Set of 10 Cannon connectors (male) 25 pins soldering, including hood straight clamp		A*
P849-944	Set of 10 Cannon connectors (female) 25 pins soldering, including hood straight clamp		A*
P843-023	Set of 10 Card connectors (female) for peripheral connection to P856/7/8/9 CPU card		B
P843-024	Set of 10 Euro-card connectors (female), 2*36 pins (wrapped version)		A
	Data communication auxiliary equipment		
P849-029	Modem panel for 16 synchronous/asynchronous external connections; meant for Cannon type connectors. Mounting code: rack 2U.		A
P849-130	Panel for visualizing up to 32 "Dataset ready" signals. MC: rack 2U		B*
P849-230	Display equipment for 8 "Dataset ready" signals with 3 m cable and connectors. Requires modem panel P849-029 and visualizing panel P849-130.		B*

Type number	Description	Applicable system	Class
	Cables for DC-applications with Belier-format cards		
P843-037	Cable for connection of a V24 interface to a serial CU; 7.5 m	2 6 7 8 9	A*
P843-038	Cable for connection of a V24 interface to P856/7/8/9 CPU; 7.5 m	2 6 7 8 9	A*
P849-524	Cable between modem panel P849-029 and line control unit P847-060, P847-070, P846-060, P846-070 or P847-100 for 1 half duplex or 1 full duplex connection; 3 m	2 6 7 8 9	A*
P849-534	Cable between modem panel P849-029 and line control unit P847-060, P847-070, P846-060, P846-070 or P847-100 for 1 half duplex or 1 full duplex connection, including visualization signal option; 3 m Requires visualizing panel P849-130 and display equipment P849-230.	2 6 7 8 9	A*
P849-624	Cable between modem panel P849-029 and line control unit P845-060 for 4 half duplex or 4 full duplex connections; 3 m	2 6 7 8 9	A*
P849-634	Cable between modem panel P849-029 and line control unit P845-060 for 4 half duplex or 4 full duplex connections, including visualization signal option; 3 m Requires visualizing panel P849-130 and display equipment P849-230.	2 6 7 8 9	A*
P849-724	Cable between modem panel P849-029 and line control unit P845-070 for 4 device connections; 3 m	2 6 7 8 9	A*
P849-734	Cable between line control unit P845-070 and 4 external units (open ended); 7.5 m	2 6 7 8 9	A*
P849-824	Cable between line control unit P844-110 and external equipment (open ended), for 16 input and 16 output lines; 3 m	2 6 7 8 9	B*
P849-346	Cable between modem panel P849-029 and modem according to CCITT recommendations V24; 5 m	2 6 7 8 9	A
P849-336	Cable between modem panel P849-029 and 1 V24 terminal (locally connected); 5 m	2 6 7 8 9	A

Type number	Description	Applicable system	Class
	Cables for DC-applications with Euro-format cards		
P843-048	Cable 7.5m for connection of V24 terminal to serial Euro CU (ASCU4Z)	1 3 4	A‡
P843-050	Cable 7.5m for serial Euro CU (ASCU4Z) open ended (current loop)	1 3 4	A‡
P849-514	Cable 7.5m between line CU (SALCUZ/HLCUZ) and V24 modem	1 3 4	A
P849-356	Cable 7.5m between line CU (SALCUZ/HLCUZ) and V24 terminal	1 3 4	A
P849-357	Cable 7.5m between line CU (SCUZ) and V24 terminal	1 3 4	A
P849-358	Cable 7.5m between line CU (SCUZ) and CL terminal	1 3 4	A
P849-359	Cable 1.5m between modem panel and V24 Euro CU (ASCU4Z)	1 3 4	A
P849-360	Cable 1.5m between modem panel and V24 Euro CU (SALCUZ/HLCUZ)	1 3 4	A
	Cables for displays		
P843-040	Cable 7.5m for connection to P856/7/8/9 CPU	- 6 7 8 9	A‡
P843-041	Cable 7.5m for connection to V24 Belier CU	2 6 7 8 9	A‡
P843-042	Cable 7.5m for connection to V24 Euro CU (SCUZ)	1 3 4	A‡
P843-043	Cable 5m for connection to the modem panel (current loop)		A‡
P843-044	Cable 7.5m for connection to current loop Euro CU (SCUZ)	1 3 4	A‡
P843-045	Cable 5m for connection to the modem panel (V24)		A‡
P843-047	Cable 7.5m for connection to V24 Euro CU (ASCU4Z)	1 3 4	A‡
P843-051	Cable 7.5m for connection to V24 Euro CPU (P854)	4	A‡

Type number	Description	Applicable system	Class
	Cabinets		
P849-076	Basic 19" cabinet, 36 units with side panels and rear door, but non-equipped. See notes 26, 29 (appendix 1)		A
P849-077	Basic 19" cabinet, 36 units with 2 fans, 14A power distribution panel, side panels and rear door usable height 33U, usable depth 27.5 inch. See notes 26, 29 (appendix 1)		A
P849-087	Basic 19" cabinet, 24 units with 2 fans, 14A power distribution panel, side panels and rear door usable height 21U, usable depth 27.5 inch. See notes 26, 29 (appendix 1)		B*
P849-176	Extension 19" cabinet, 36 units with side panels and rear door, but non-equipped. See notes 26, 29 (appendix 1)		A
P849-177	Extension 19" cabinet, 36 units with 2 fans and rear door, usable height 33U, usable depth 27.5 inch See notes 26, 29 (appendix 1)		A
P849-277	Basic 19" cabinet, 36 units with 2 fans, 14A power distribution panel, side panels and special rear door for mounting disc drives P824-012/014 usable height 33U, usable depth 27.5 inch. See notes 26, 29 (appendix 1)		A*
P849-377	Extension 19" cabinet, 36 units with 2 fans and special rear door for mounting disc drives P824-012/014 usable height 33U, usable depth 27.5 inch. See notes 26, 29 (appendix 1)		A

Type number	Description	Applicable system	Class
	Cabinet accessories		
P849-042	Power distribution panel 14A. Mounting code: rack 2U		A
P849-043	Power distribution panel 25A. Mounting code: rack 2U		A
P849-044	Filter panel for disc up to two units X1215/X1216/Cipher, implemented inside cabinet		A
P849-046	Front panel, height 1U		A
P849-047	Front panel, height 3U		A
P849-048	Front panel, height 5U		A
P849-049	Front panel, height 7U		A
P849-070	Ventilation unit 2 fans. Mounting code: rack 1U. See note 26 (appendix 1)		A
P849-071	Ventilation unit 4 fans. Mounting code: rack 1U. See note 26 (appendix 1)		A
P849-078	Pedestal for 19" cabinet Required when disc drives are mounted in cabinet		A

Type number	Description	Applicable system	Class
	Maintenance equipment		
P843-035	Extension card for testing P856/7/8/9 CPU-card	2 6 7 8 9	A‡
P843-135	Extension card for testing Belier-format control units and I/O-processors	2 6 7 8 9	A‡
P843-235	Extension card for testing Belier-format data communication control units	2 6 7 8 9	A‡
P843-350	Extension card for testing single-Euro-format cards outside the rack	1	A‡
P843-351	Extension card for testing double-Euro-format cards outside the rack	1 3 4	A‡
P843-352	Extension card for power supply regulator card	1	A‡
P849-910	Testtool for DPCS-system P843-180. Mounting code: 1 slot. Power consumption: +5V/3.5A		B‡
P849-930	Testtool for AMA8C		B
P849-925	Testtool for V28LCM		B‡

Chapter 9 Software

Software can be ordered at Philips Data Systems and will be issued as distribution systems only. A distribution system is a collection of a number of software items and constitutes the software systems as are issued by Philips Data Systems.
Software items as listed on the next pages can be selected out of these distribution systems. Below a survey of the distribution systems is given.

System	12NC	medium	class	note
MAS	8701 305 8rllm	disc/magnetic tape	1A	1,3,9
DOS/DRTM (FOS/FRTM)	8701 307 8rllm	disc/magnetic tape	1A	3,7,9
BRTM	8701 306 8rllm	disc/magnetic tape	1B	2,8,9
SRTM2	8701 309 8rllm	paper tape/cassette tape	1A	5,6
FORTRAN	8701 357 8rllm	disc/magnetic tape	1A	4,9
CRS		disc/magnetic tape	X	
CRTS		disc/magnetic tape	X	
RTL/2	8701 352 8rllm	cassette tape/magnetic tape	1A	4,9
AMS	8701 360 8rllm	cassette tape/magnetic tape	1A	4,9

Notes:
1. A MAS based starter system tailored to handle the specified minimum configuration, together with all required utilities to handle the delivered software.
2. See note 1, but now a DOS based starter system is available on the medium.
3. The magnetic tape contains a copy of a disc pack or cartridge. The tape contents need to be restored on disc before the distribution system can be used.
4. LM-type, OB-type and UF-type files to be used with MAS and/or DOS.
5. SC-type and UG-type files.
6. SRTM2 has replaced SRTM/SRRTM.
7. Includes the ROM generation software PV271-161, PV271-162 and PV271-163.
8. BRTM will remain 1B until CRTS is available.
9. The 12NC contains information about release (r), level (ll) and medium (m) on which the software can be made available. The medium is indicated by:
   - 3 - cassette tape
   - 4 - magnetic tape 800 bpi
   - 5 - magnetic tape 1600 bpi
   - 6 - disc 2.5M
   - 7 - disc 80M

Type number	Description
	Basic Real Time System (BRTS)
	(memory required 8k16)
PV270-070	Basic package (not for P852) including - Basic Reak Time Monitor (BRTM) serving peripherals as specified in appendix 2 - Papertape loader - System generator for Basic Real Time Monitor (BRMGEN) - INTCP operator command program - AUTINI 32k memory LM generation - Remote loading - MMU package enabling memory usage greater than 32k words
PV270-071	Basic package (see PV270-070) for P852 instruction set
PV266-004	Full FORTRAN Real Time library
PV207-022	Data communication package for BRTM serving DC control units as specified in appendix 3 It includes: - System generator - HDLC procedure
PV207-040	BSC Line Procedure package for synchronous line control units
PV265-003	ASCII-memory dump on I/O typewriter P841-101/105, characterprinter P842-001/002 or on lineprinter P809-002/004, DP-compatible

Notes:

1. Note the availability of control units for the specific systems as specified in appendix 3.
2. Minimum configuration:
   - 8k 16-bit words of memory
   - I/O typewriter
3. For system generation 16k words are mandatory.
4. The Basic Real Time Monitor is designed as a runtime executive system, capable of handling real time events and a variable number of programs in a multitasking environment.
5. The Basic Real Time Monitor includes all functions of the Small Real Time Monitor and is expanded with more monitor requests and I/O facilities. Each program, which runs under the Small Real Time Monitor, can run under the Basic Real Time Monitor.
6. The Basic Real Time Monitor is also compatible with the Basic Operating System in such a way, that a program developed under the Basic Operating System, can run under the Basic Real Time Monitor without modifications.
7. FORTRAN programs have the possibility of using the facilities of the Full FORTRAN real time library, which enables easy writing of real time programs.
8. The IPL option P843-053/054 is highly recommended to run standard software on the P851.
9. Simulation routines for hardware multiply and divide are provided for the P852.
10. For BASIC see PV280-092 and PV280-094.
11. The BRTS is classified in class 1B.
    (Class 1B products are products with a frozen status. This implies that maintenance, releasing and support are restricted to urgent and very urgent problems only)

Type number	Description

Small Real Time Monitor (SRTM2)

(memory required 4k16)

PV270-060 Basic package including
- Small Real Time Monitor (SRTM) serving peripherals as specified in appendix 2 and WSIA (Work Station for Industrial Applications) peripherals (see note 5)
- Loader
- Stand alone EPROM Programming tool to be used with the PRGT2-card (P843-012)

Notes:
1. SRTM2 is generated via the Macro Processor. It is possible to generate a Small Read Only Real Time Monitor for ROM versions.
2. The SRTM2 is upwards compatible with the Basic Real Time Monitor.
3. The SRTM2 is intended for dedicated computer applications requiring a small and fast operating system.
4. The SRTM2 is memory resident. For IPL and data storage paper tape, cassette or floppy disc can be used. SRTM2 and user programs are link-edited together.
5. With the Work Station for Industrial Applications some special devices can be used. These devices are:
   - light pen
   - V24 I/O lines
   - keyboard (16 keys) and display (16 characters)
   - BCD input
   - programmable counters/timers
6. Minimum configuration for the monitor:
   - 4k 16-bit words of memory
   - I/O typewriter.

Type number	Description
	Disc Operating System (DOS) (memory required 32k16)
PV270-040	Basic package including - Disc Operating Monitor (DOM) serving peripherals as specified in appendix 2 - Control command interpreter - Line Editor - System generation package - Disc premark - Assembler - Linkage Editor - Overlay Linkage Editor - Debugging Package - Macroprocessor - Stand Alone General Purpose Loader (IPLDK)
PV265-003	ASCII-memory dump on I/O typewriter P841-101/105, characterprinter P842-001/002 or on lineprinter P809-002/004, DP-compatible
PV207-021	Data communication package for DOS serving DC control units as specified in appendix 3. It includes HDLC procedure
PV207-040	BSC Line Procedure package for synchronous line control units
PV207-051	On-line testroutines for SLCU2S, SLCU4, AMA8A/C, ALCU2/4
PV271-162	ROM Image under DOS Utility routines running under the Disc Operating System to generate the input for the ROM Programmer DATA I/O on papertape (8+8 format)
PV271-163	ROM Image under DOS Utility routines running under the Disc Operating System to generate the input for the ROM Programmer DATA I/O on cassette

Notes:

1. Minimum configuration for the basic package:
   - 32k 16-bit words of memory
   - I/O typewriter
   - 1 hard-disc unit
2. The IPL option P843-053/054 is highly recommended to run standard software on the P852.
3. Simulation routines for hardware multiply and divide are provided for the P852.
4. For FORTRAN see PV281-080 and PV281-082.
5. For RTL/2 see PV281-090.

Type number	Description
	Floppy Operating System (FOS) (memory required 32k16)
PV270-042	Basic package including - Floppy Operating Monitor (FOM) serving peripherals as specified in appendix 2 - Control command interpreter - Line Editor - System generation package - Disc premark - Assembler - Linkage Editor - Overlay Linkage Editor - Debugging package - Macroprocessor - Stand Alone General Purpose Loader (IPLDK)
PV265-003	ASCII-memory dump on I/O typewriter P841-101/105, characterprinter P842-001/002 or on lineprinter P809-002/004, DP-compatible
PV207-021	Data communication package for DOS serving DC control units as specified in appendix 2. It includes HDLC procedure
PV207-040	BSC Line Procedure package for synchronous line control units
PV207-051	On-line testroutines for SLCU2S, SLCU4, AMA8A/C, ALCU2/4

Notes:

1. Minimum configuration for the basic package:
   - 32k 16-bit words of memory
   - I/O typewriter
   - 2 floppy disc units
2. One floppy disc unit (1M) can not contain all items listed above.
3. This software is not available for the P852.

Type number	Description
	Disc Real Time System (DRTS) (memory required 32k16)
PV270-080	Basic package (not for P852) including - Disc Operating Monitor (DRTM) serving peripherals as specified in appendix 2 - System command language - System generator for Disc Real Time Monitor - Disc Premark - Debugging package - Stand Alone General Purpose Loader (IPLDK)
PV270-081	Basic package (see PV270-080) for P852 instruction set
PV207-023	Data communication package for DRTM serving DC control units as specified in appendix 2. It includes HDLC procedure
PV207-053	On-line testroutines for SLCU2S, SLCU4, AMA8A/C, ALCU2/4
PV207-040	BSC Line Procedure package for synchronous line control units
PV265-003	ASCII-memory dump on I/O typewriter P841-101/105, characterprinter P842-001/002 or on lineprinter P809-002/004, DP-compatible
PV270-085	Extended Disc File Management (EDFM)

Notes:

1. The Disc Real Time Monitor is designed as a runtime executive system, capable of handling real-time events and a variable number of programs in a multitasking environment.
2. Minimum configuration for basic package:
   - 32k 16-bit words of memory
   - 1 hard-disc unit
   - I/O typewriter

   It is recommended to have direct access to files and/or programs prepared under DOS.
3. The Disc Real Time Monitor is compatible with Disc Operating System in such a way, that a program developed under Disc Operating System can run without modification under the Disc Real Time Monitor.
4. FORTRAN programs can use thee facility of the real time FORTRAN routines.
5. The IPL-option P843-053/054 is highly recommended to run standard software on the P852.
6. Simulation routines for hardware multiply and divide are provided to run Fortran programs on the P852.

Type number	Description
	Floppy Real Time System (FRTS) (memory required 32k16)
PV270-082	Basic package (not for P852) including - Floppy Real Time Monitor (FRTM) serving peripherals as specified in appendix 2 - System command language - System generator for Floppy Real Time Monitor - Debugging package - Disc premark - Stand Alone General Purpose Loader
PV270-023	Data communication package for FRTM serving DC control units as specified in appendix 2. It includes HDLC procedure
PV270-053	On-line testroutines for SLCU2s, SLCU4, AMA8A/C, ALCU2/4
PV207-040	BSC Line Procedure package for synchronous line control units
PV265-003	ASCII-memory dump on I/O typewriter P841-101/105, character printer P842-001/002 or on lineprinter P809-002/004, DP-compatible

Notes:

1. The Floppy Real Time Monitor is designed as a runtime executive system, capable of handling real-time events and a variable number of programs in a multitasking environment.
2. Minimum configuration for basic package:
   - 32k 16-bit words of memory
   - 2 floppy disc units
   - I/O typewriter

   It is recommended to have direct access to files and/or programs prepared under a FOS.
3. The Real Time Monitor is compatible with Floppy Operating System in such a way, that a program developed under Floppy Operating System can run without modification under the Floppy Real Time Monitor routines.

Type number	Description
	Multi Application System (MAS) (memory required 64k16)
PV280-100	Basic package including - Multi Application Monitor (MAM) serving peripherals as specified in appendix 2 - Batch control processor - Foreground control language - Update package - Librarian - System generation package - Disc premark - Assembler - Overlay Linkage Editor - Macroprocessor - SORT - Transaction oriented Disc File Management Access Method (TDFM) and utility (EDF) - Data communication package for MAM serving DC control units as specified in appendix 2, includes HDLC procedure - BSC Line Procedure package for synchronous line control units

Notes:

1. Minimum configuration:
   - 64 k 16-bit words of memory
   - 1 hard-disc unit
   - I/O typewriter
   - 1 lineprinter
3. For FORTRAN see PV281-081 and PV281-082
4. For AMS see PV281-085
5. For RTL/2 see PV281-091
6. Release 8.00 is meant for P854/8/9, release 8.50 for P857

Type number	Description

Console Remote System (CRS)

PV281-...

The Console Remote System is a package allowing several users to build jobs and execute them in the Batch machine. Each user dialogues from a VDU or equivalent device.
The Basic package includes:
- Line Editor (LED)
- Text Editor (TED)
- Word Processor (WED)

Memory requirements:
The minimum requirement to use the LED is 32kw. For TED and WED it is necessary to foresee 32kw per terminal to avoid the swapping operations which can affect the response time.
In addition the Batch machine will require 32kw in resident memory.

Type number	Description

Communication Real Time System (CRTS)

(memory required 64k16)

PV270-... Basic Package including:
- Communication Real Time Monitor (CRTM) serving peripherals as specified in appendix 2
- cassette or magnetic tape or floppy disc loader
- IMCRTM program to build a cassette (or magnetic tape or 1Mb floppy disc) containing the CRTM, running under MAS
- system generation package

Notes:
1. The CRTM is the successor of the BRTM for more than 32k16 of memory.
   The CRTM is a real time, memory resident monitor which provides foreground operations. For the foreground user it is a subset of MAS foreground functions. All functions included in CRTM are fully MAS compatible.
2. The programs running under CRTM may be developed under any system (DOS,MAS) and must be tested under a MAS-system, using foreground system.
3. The system generation package is the MAS one.
4. The IMCRTM program running under MAS builds on a cassette (or magnetic tape or 1Mb floppy disc) the image of the real time machine including the foreground machines with its file-codes and the programs.
5. At present the CRTM is running without disc but an extension is done to manage disc files.
6. Minimum configuration:
   - 64 k 16-bit words of memory
   - 1 cassette or magnetic tape or 1Mb floppy
   - I/O typewriter

Type number	Description

Real Time Language (RTL/2)

PV281-090 RTL/2 package for DOS including
- RTL/2 compiler
- Linkage verifier
- Control routines
- Base programs
- Stream I/O formatting
- Stream I/O support
- Supervisory control procedures
- Mathematical library

PV281-091 RTL/2 package for MAS
(see PV281-090)

Note: Compiled programs will run under BRTM, DOM, DRTM, FOM, FRTM, MAS and SRTM2.

Extended FORTRAN

PV281-080 Extended FORTRAN compiler for DOS

PV281-081 Extended FORTRAN compiler for MAS

PV281-082 DOS/MAS compatible object libraries inclusive mathematical and real time routines

Note: An object library can be made available tailored to specific requirements concerning reentrant/non-reentrant programs and wired/simulated floating point arithmetic.

Type number	Description

Activity Management System (AMS)

PV281-085

AMS package for MAS including
- Preprocessor program
- System generation program
- Backout and recovery program
- Conversational controller program
- Object library for preprocessing
- Object library for systeme generation
- Object library for special I/O

The AMS-3 software offers the following features:
- Concurrent conversation from multiple terminals with one application developed to serve one terminal
- Application programming in a logical statement level language
- Use of a network access software to handle the connections between remote application and terminals
- Datatransmission from a data base by means of conversation between remote and local application
- Data file access management with recovery procedure
- On line processing of file allocation and cataloguing
- Handling of character strings and packed decimal variables
- Control of privacy

Note: The use of Extended FORTRAN is mandatory
AMS-3 replaces AMS-2

Chapter 10 Testprograms

All P800 testprograms require as a minimum: - IPL (ROM-bootstrap)
- full control panel
- a program loading device

The media on which the testprogram will be delivered depends on the first digit in the PV-typenumber:
x=2 punched tape
x=3 cassette tape
x=4 floppy disc

Part A: Testprograms for Euro-systems

Type number	Program name	Description	Memory required	Notes pag.10.2
		Processors		
PVx50-128	CPZ8K	Program tests all P851 CPU instructions	8k16	1
PVx50-144	CP1A	Program tests all P853 CPU instructions	8k16	2
PVx50-145	CP57RE	Program tests all P854 CPU instructions	16k16	3
PVx50-143	SBCA	Testprogram for P870 to test all I/O controllers and timers on the card	4k16	10
		Memories		
PVx50-126	BRAM	Testprogram for semiconductor memories smaller than or equal to 32k16	4k16	5
PVx50-136	B8RAM	Testprogram for semiconductor memories beyond 32k16	32k16	3
		Serial intererface		
PVx50-139	BZSCU	Testprogram for serial V24 or current loop interfaced ASR33 or PER3100. Display via P845-140	4k16	5
PVx50-153	BASCU4	Testprogram for operability of ASCU4Z	8k16	5,9
		Disc		
PVx50-130	BFLOP1	Testprogram for P830-006/015 via P830-145	8k16	5
PVx50-134	BZ1250	Testprogram for P827-001 (X1250) via P827-140	16k16	8
PVx50-141	BZ1216	Testprogram for P824-014 (X1216) via P824-140	16k16	5,8,9
PVx50-142	BZCDD1	Testprogram for P824-012 (X1215) via P824-140	16k16	5,8,9
PVx50-148	BF1MZ	Testprogram which tests the F1MZ controller on the disc CDC 9404/9406	24k16	5,9

Type number	Program name	Description	Memory required	Notes pag.10.2
		Peripherals		
PVx50-100	BPTR1	Testprogram for P801-001 via P801-140 or P840-141 (with reference tape)	4k16	5
PVx50-118	BPTP1	Testprogram for P803-001 or Facit 4060 via P840-141	4k16	5
PVx50-102	BCR1	Testprogram for P806-102 via P840-103	4k16	4,5
PVx50-119	BLP1	Testprogram for P809-002 (X1415) or P809-004 (X1425) via P840-103	4k16	5
PVx50-150	BVCCU4	Testprogram for VCCU	8k16	5,9
		Datacommunication		
PVx50-115	BHDLC	Testprogram for P845-100	8k16	6,7,9
PVx50-116	BZSAC1	Testprogram for SALCUZ synchronous or asynchronous connections	8k16	6
PVx50-153	BASCU4	Testprogram for P845-145	8k16	6,7,9
PVx50-135	IPLC1	Testprogram for testing the IPLRZ card and the remote loading system via the Supervisory Panel	8k16	1,9
PVx50-146	REMMU1	Testprogram for the memory management unit part of the P854	32k16	3,9
PVx50-147	REPAF	Testprogram for a page fault trap and the handling of RTC, PW interrupt	32k16	3
PVx50-160	BHLVCU	Testprogram for HLVCU	24k16	7,9

Notes

1 Only P851
2 Only P853
3 Only P854, consisting of 2 CPU cards and 1 MIOP card
4 Not P854
5 To run a peripheral testprogram the RTC is not mandatory, but highly recommended.
6 To run datacommunication testprograms the RTC is mandatory
7 P849-901 diagnostic box is required
8 Testprogram operates only on multiplex channel. An I/O processor is required
9 To run these testprograms a system console is required and it may be current loop or V24 interfaced
10 To run this testprogram a TSBC and a hand held control panel are required

Part B: Testprograms for Belier-systems

Type number	Program name	Description	Memory required	Notes pag.10.4
		Processors		
PVx50-120	CPA4K	Program tests instruction set of P852 CPU	4k16	1
PVx50-121	CPA8K	Program tests instruction set of P852 CPU	8k16	1
PVx50-127	CPB8K	Program tests instruction set of P856/7 CPU	8k16	3,6,7
PVx50-145	CP57RE	Program tests instruction set of P858/9 CPU	16k16	3,4,5

Type number	Program name	Description	Memory required	Notes pag.10.4
		Memories		
PVx50-122	BMEM0	Testprogram for memories smaller than or equal to 32k16, incl. PWF/AR	4k16	7
PVx50-129	BBMEM0	Testprogram for memories beyond 32k16, incl. PWF/AR (1.2 us or 0.7 us)	>32k16	3,4,7
PVx50-126	BRAM	Testprogram for semiconductor memories smaller than or equal to 32k16	4k16	3,4,6
PVx50-136	BBRAM	Testprogram for semiconductor memories beyond 32k16	>32k16	6
		Serial interface		
PVx50-101	BSER1	Testprogram for P842-001 via P845-040 or P840-002	4k16	6,7,8,9
PVx50-138	BBSER1	Testprogram for V24 device via controller on CPU board	8k16	3,6,7
PVx50-132	BP817	Testprogram for P817-001/002 via P840-002 or P845-040	4k16	8
PVx50-131	BBDISP	Testprogram for Hazeltine 1200A via serial controller on P856/7 CPU	8k16	3,8
PVx50-107	BDISP1	Testprogram for Hazeltine 1200A via P840-002 or P845-040	4k16	8
		Disc		
PVx50-133	BFHD1	Testprogram for DDC 8200/8400 via P826-040	4k16	8,9,10
PVx50-149	BF1MB	Testprogram for CDC 9404/9406 via F1MB (tests also SOP-function)	24k16	9
PVx50-130	BFLOP1	Testprogram for P830-006/015 via P830-045	8k16	8
PVx50-108	BCDC2	Testprogram for P825-007/008 via P825-040	32k16	8
PVx50-105	BCDD1	Testprogram for P824-012 (X1215) via P824-040	8k16	8
PVx50-140	BX1216	Testprogram for P824-014 (X1216) via P824-040	8k16	8
PVx50-151	BIGD2C	Testprogram for CMD disc drives via BIGD2	32k16	3,8,9
PVx50-155	BIGD2S	Testprogram for SMD disc drives via BIGD2	32k16	3,8,9
		Peripherals		
PVx50-100	BPTR1	Testprogram for P801-001 via P840-001/002 or P801-040 (with reference tape)	4k16	8
PVx50-118	BPTP1	Testprogram for P803-001 or Facit 4060 via P840-001/002	4k16	8
PVx50-102	BCR1	Testprogram for P806-102 via P840-003 (with reference card deck)	4k16	8
PVx50-119	BLP1	Testprogram for P809-002/004 via P840-003 or P810-040	4k16	8
PVx50-104	BCASS1	Testprogram for P833-001/002 via P833-152 (with reference cassette)	4k16	8
PVx50-106	BMAGT1	Testprogram for P831-002/004/006 via formatter and P831-040	8k16	8
PVx50-109	BMAGT2	Testprogram for P831-002/004/006 via formatter and P831-060	8k16	8
PVx50-103	BDIOD1	Testprogram for P837-001/002 (DIOD testtool supplied)	4k16	8

Type number	Program name	Description	Memory required	Notes pag.10.4
		Datacommunication		
PVx50-112	BMA8A+C	Testprogram for P845-060 and P845-070	16k16	9,11
PVx50-111	BALCU	Testprogram for P846-060 and P846-070	16k16	9,11,12
PVx50-110	BSLCU2	Testprogram for P847-060	16k16	9,11,12
PVx50-117	BSLCU4	Testprogram for P847-070	16k16	9,11,12
				AMA8A: 12
				AMA8C: 13
PVx50-113	BLSM16	Testprogram for P844-060 or P844-070	16k16	9,11,13
PVx50-114	BV28CM	Testprogram for P844-110	16k16	9,11 14
PVx50-115	BHDLC	Testprogram for P847-100	16k16	9,11,12
PVx50-160	BHLVCU	Testprogram for P847-110	24k16	9,11,12
		Options		
PVx50-123	BBMMU1	Testprogram for memory management unit	32k16	2
PVx50-124	BBFPP1	Testprogram for P857-020	8k16	3,4
PVx50-146	REMMU1	Testprogram for the memory management unit part of the P858/9	32k16	3,4,5,9
PVx50-147	REPAF	Testprogram for a page fault trap and the handling of RTC/PW interrupt	32k16	3,4,5
PVx50-135	IPLC1	Testprogram for IPLC and the remote loading system via the Supervisory Panel	8k16	9
PVx50-125	BPRTC1	Testprogram for P843-060	8k16	
PVx50-137	BATYPE	Testprogram for P841-101 via P852-023	4k16	1

Notes

1 Only P852
2 Only P857
3 Not P852
4 Not P856
5 Not P857
6 Not P858
7 Not P859
8 To run peripherals testprograms the RTC is not mandatory but is highly recommended
9 To run these testprograms a system console is required and it may be current loop or V24 interfaced
10 This testprogram runs only on multiplex channel. An I/O-processor is required
11 To run datacommunication testprograms the RTC is mandatory
12 P849-901 diagnostic box is required
13 2x P849-930 testtool is required
14 2x P849-925 testtool is required

Appendices

Appendix 1. List of notes

Note	Description
1	Mounting gear for 19" cabinets is supplied.
2	+5VM and +12VM denote special voltage for memory when a battery back up facility is used. When it is not used the +5VL and +5VM, resp. +12VL and +12VM are interconnected.
3	The configuration includes as standard a battery pack and its associated logic. Capacity 2 Ah for P854-300, 5Ah for P854-400 and P859-400, charging time 48 h.
4	Another battery pack can optionally be added depending on the memory size. When mounted in a cabinet the ventilation unit P843-200 is mandatory, in other cases its use is recommended.
5	The +18V and -18V are unregulated.
6	See page 1.5 for mounting box lay-out and chapter 2 for power consumption of memories.
8	Minimum size for P857 software PV280-100 is 48k words.
10	Every slave control unit and memory suitable for P851/3/4 can be combined with P870.
11	The TSBC card P870-570 is mandatory to use the hand held control panel with P870.
12	Optional battery back-up feature P843-005 can be added for some applications to maintain the the MOS memories.
13	If I/O processor is required for common control units, break cables P843-031 must be added.
14	Control units are delivered without cables/connectors for connection to the devices (except for floppy control units).
15	Control unit is designed to interface the Documation M200, M300 and M600 models.
17	A break extension cable P843-031 must be ordered if the control unit is connected to an I/O processor.
18	With 4 floppy drives the cable 5111 199 71020 (Euro-systems) or 5111 199 71970 (Belier-systems) is to be ordered.
19	For some applications an I/O processor P843-020, P843-120 or P851-020 is needed.

Note	Description
20	The higher current figure applies when the output current is also required.
22	Several national keyboard lay-outs and character sets are available.
23	When connected to the end of the GP-bus a terminator P843-009 must be added.
24	Connector P843-021 is required for device connection.
25	This cable is included in the character printer P842-001, but must be ordered when the console is replaced by other terminals.
26	Maximum power dissipation per cabinet: without fans 800W, with 2 fans 1200W and with 4 fans 1500W.
27	Mandatory when discs are present in a cabinet.
28	Interrupt connection is done by back panel wiring. To make use of the serial coded interrupt feature of the bus, order chip nr 8709 013 00114 which can be optionally inserted on the card.
29	Necessary front panels are added to the system. Cabinet lay-out, power distribution and ventilation will be specified by the factory at configuration time, unless specific requirements are stated at the time of ordering. Added front panels, power distribution panels and ventilation units are seperately charged.
30	Memory voltages are supplied by the logic voltages
31	A second PSUB and PSUM is optional
32	Consumption including full control panel
33	Consumption including extended control panel
34	Consumption including extended digital control panel

Appendix 2. P800 Software support for P800 hardware

hardware items		software systems							
type-nr	description	SRTM2	BRTM	FOS	DOS	FRTM	DRTM	MAS	CRTM
	central processing units								
P870	CPU + 4Kw RAM, 12K4 REPROM	‡	-	EM	-	-	-	-	-
P851	CPU + max. 32Kw RAM	‡	‡	‡	‡	‡	‡	-	-
P853	CPU + max. 32Kw RAM	‡	‡	‡	‡	‡	‡	-	-
P856	CPU + max. 32Kw RAM	‡	‡	‡	‡	‡	‡	-	-
P857	CPU + max. 128Kw RAM	32K	‡	32K	32K	‡	‡	‡	‡
P858	CPU + max. 128Kw RAM	32K	‡	32K	32K	‡	‡	‡	‡
P859	CPU + max. 512Kw RAM	32K	128k	32K	32K	128K	128K	‡	‡
P854	CPU + max. 512Kw RAM	32K	128k	32K	32K	128K	128K	‡	‡
	system options								
	floating point processor	-	-	-	-	-	-	‡	‡
	read only memory support	runt	-	dev	dev	-	-	-	-
	power failure/automatic restart	-	-	-	-	-	-	rel 8	‡
	I/O processor	‡	‡	‡	‡	‡	‡	‡	‡
	memory management unit	-	‡	-	-	‡	‡	‡	‡
	non-disc environment	‡	‡	-	-	-	-	-	‡
	high performance disc equipment								
P824-012	disc drive 2x2.7 Mb	-	-	-	‡	-	‡	‡	‡
P824-014	disc drive 2x5.4 Mb	-	-	-	‡	-	‡	‡	‡
P825-007	disc drive 40 Mb	-	-	-	‡	-	‡	‡	-
P825-008	disc drive 80 Mb	-	-	-	‡	-	‡	‡	-
P825-011	disc drive 64 Mb	-	-	-	-	-	-	‡	-
P825-012	disc drive 96 Mb	-	-	-	-	-	-	‡	-
P825-021	disc drive 300 Mb	-	-	-	-	-	-	‡	-
	DDC fixed head disc drive	-	-	-	‡	-	‡	‡	-
	low performance disc equipment								
P830-006	floppy disc drive 0.25 Mb	‡	I,D	D	D	D	D	D	D
P830-015	floppy disc drive 0.25 Mb	‡	I,D	D	D	D	D	D	D
P830-025	floppy disc drive 1 Mb	-	I,D	S	D	S	D	D:rel 8	D
P830-035	floppy disc drive 1 Mb	-	I,D	S	D	S	D	D:rel 8	D
P827-001	mini fixed disc 6 Mb	-	-	S	D	S	S	-	-

hardware items		software items							
type-nr	description	SRTM2	BRTM	FOS	DOS	FRTM	DRTM	MAS	CRTM	TMS
	magnetic tape equipment									
P831-004	tape drive 800 bpi	-	‡	‡	‡	‡	‡	‡	‡	NA
P831-006	tape drive 1600 bpi	-	‡	‡	‡	‡	‡	‡	‡	NA
P833-002	cassette tape drive	‡	‡	‡	‡	‡	‡	‡	‡	NA
	unit record equipment									
P801-001	punched tape reader	‡	‡	‡	‡	‡	‡	‡	‡	NA
P803-001	tape punch	‡	‡	‡	‡	‡	‡	‡	‡	NA
P806-102	card reader	-	‡	‡	‡	‡	‡	‡	‡	NA
P809-002	line printer 200 lpm	‡	‡	‡	‡	‡	‡	‡	‡	NA
P809-003	line printer 300 lpm	‡	‡	‡	‡	‡	‡	‡	‡	NA
P809-004	line printer 400 lpm	‡	‡	‡	‡	‡	‡	‡	‡	NA
P809-006	line printer 600 lpm	‡	‡	‡	‡	‡	‡	‡	‡	NA
	V24 interface equipment									
P842-00x	character printer	‡	‡	‡	‡	‡	‡	‡	‡	-
P817-00x	video display terminal	‡	‡	‡	‡	‡	‡	‡	‡	‡
P816-0xx	video display terminal	‡	‡	‡	‡	‡	‡	‡	‡	‡
P818-0xx	video display terminal	‡	‡	‡	‡	‡	‡	‡	‡	‡
P845-140	SCUZ	‡	‡	‡	‡	‡	‡	‡	‡	-
P845-145	ASCU4Z	-	‡	‡	‡	‡	‡	rel 8	‡	‡
P845-040	SCU	‡	‡	‡	‡	‡	‡	‡	‡	-
	data communication equipment									
P845-160	SALCU-Z	‡	-	‡	‡	‡	‡	-	-	‡
P845-170	SLCU-Z	-	-	-	-	-	-	rel 8	-	-
P845-100	HLCU-Z	-	-	‡	‡	‡	‡	-	-	‡
P845-110	HLVCU-Z	-	-	-	-	-	-	rel 8	-	-
P847-060	SLCU2S	-	-	‡	‡	‡	‡	-	-	‡
P847-070	SLCU4	-	-	‡	‡	‡	‡	-	-	‡
P847-100	HLCU1	-	-	‡	‡	‡	‡	-	-	‡
P847-110	HLVCU-B	-	-	-	-	-	-	rel 8	-	-
P846-060	ALCU2	-	-	‡	‡	‡	‡	-	-	‡
P846-070	ALCU4	-	-	‡	‡	‡	‡	-	-	‡
P845-060	AMA8A	-	-	‡	‡	‡	‡	‡	-	‡
P845-070	AMA8C	-	-	‡	‡	‡	‡	-	-	‡

explanation of symbols used

‡	supported	runt	runtime environment supported
-	not supported	dev	development environment supported
NA	not applicable	I	supported as IPL device only
rel x	supported by future release x	D	supported as data carrier only
32K,128K	max. memory size supported	S	supported as system device
EM	supported with external memory		

note: the Transmission Management System TMS is the Data Communication support package running with BRTM, FOS, DOS, FRTM, DRTM and MAS.

Index

Type number	Description	Applicable system	Class	Page
P801-001	Punched tape reader 333 cps (PTR300)		A*	5.1
P803-001	Tape punch 75 cps (PTP75)		A*	5.1
P806-102	Card reader 300 cpm (CRM300)		A*	5.2
P809-002	Matrix line printer 200 lpm		B*	5.2
P809-003	High resolution matrix line printer 300 lpm		X	5.2
P809-004	Matrix line printer 400 lpm		A*	5.2
P809-006	High resolution matrix line printer 600 lpm		X	5.2
P810-040	Control unit LP (CULP)	2 6 7 8 9	B*	5.2
P815-100	Workstation for Industrial Applications		X	5.5
P815-011	Optical wand		X	5.5
P816-010	Video display terminal, 12" screen, white phosphor		X	5.4
P816-011	Video display terminal, 12" screen, green phosphor		X	5.4
P816-020	Video display terminal, 12" screen, white phosphor, block mode		X	5.4
P816-021	Video display terminal, 12" screen, green phosphor, block mode		X	5.4
P818-010	Video display terminal, 15" screen, white phosphor		X	5.4
P818-011	Video display terminal, 15" screen, green phosphor		X	5.4
P818-020	Video display terminal, 15" screen, white phosphor, block mode		X	5.4
P818-021	Video display terminal, 15" screen, green phosphor, block mode		X	5.4
P818-051	Alphanumeric keyboard for P816-010/011 and P818-010/011		X	5.4
P818-052	Alphanumeric keyboard for P816-020/021 and P818-020/021		X	5.4
P818-100	Plug-in current-loop interface for P816 and P818		X	5.4
P818-120	Mounting stand		X	5.5
P818-500	Hardcopy printer		X	5.5
P824-012	Moving head disc drive		B*	5.6
P824-014	Moving head disc drive		A*	5.6
P824-040	Control unit for up to 2 moving head disc drives P824-012/014 (CDD)	2 6 7 8 9	A	5.6
P824-080	Moving head disc drive P824-012 + control unit P824-040	2 6 7 8 9	B*	5.6
P824-090	Moving head disc drive P824-014 + control unit P824-040	2 6 7 8 9	A*	5.6
P824-100	Cartridge for P824-012/014		A	5.6
P824-140	Control unit for up to 2 moving head disc drives P824-012/014 (CDDZ)	1 3 4	A	5.6
P824-180	Moving head disc drive P824-012 + control unit P824-140	1 3 4	B*	5.6
P824-190	Moving head disc drive P824-014 + control unit P824-140	1 3 4	A*	5.6
P825-008	Moving head cartridge disc drive 80M		A	5.7
P825-011	Moving head disc drive 64M		X	5.7
P825-012	Moving head disc drive 96M		X	5.7

Type number	Description	Applicable system	Class	Page
P825-040	Control unit for moving head cartridge disc drives P825-008 (CUBIGD)	2 6 7 8 9	A*	5.7
P825-041	Control unit for moving head disc drives P825-008/011/012/021 (BIGD2)	7 8 9	A	5.7
P825-141	Control unit for moving head disc drives P825-008/011/012/021 (DFP-C)	4	X	5.8
P825-200	Cartridge for P825-008		A	5.7
P825-201	Cartridge for P825-011/012		X	5.8
P827-001	Fixed head disc drive		A*	5.8
P827-140	Control unit for up to 4 fixed head disc drives P827-001 (CUMDD)	1 3 4	A*	5.8
P830-006	Floppy disc drive		A*	5.9
P830-010	Equipment shelf for up to 2 floppy disc drives P830-006/015/025/035	1 2 3 4 6 7 8 9	A	5.10
P830-015	Floppy disc drive		A	5.9
P830-025	Floppy disc drive		A	5.9
P830-035	Floppy disc drive		A	5.9
P830-045	Control unit for floppy disc drives P830-006/015 (FLDB)	2 6 7 8 9	B*	5.9
P830-050	Control unit for floppy disc drives P830-006/015/025/035 (F1MB)	6 7 8 9	A	5.9
P830-100	10 diskettes for P830-006/015		A	5.9
P830-145	Control unit for floppy disc drives P830-006/015 (FLDZ)	1 3 4	B*	5.9
P830-150	Control unit for floppy disc drives P830-006/015/025/035 (F1MZ)	1 3 4	A	5.9
P830-200	10 diskettes for P830-025/035		A	5.9
P831-004	Magnetic tape unit		A*	5.11
P831-006	Magnetic tape unit		A	5.11
P831-020	Formatter for up to 4 magnetic tape units P831-004		A*	5.11
P831-030	Formatter for up to 4 magnetic tape units P831-006		A	5.11
P831-060	Control unit for magnetic tape units P831-002/004/006 (MTCU)	2 6 7 8 9	A	5.12
P833-002	Cassette tape drive unit		A*	5.12
P833-100	Tape cassette for P833-002		A*	5.12
P833-152	Shelf for up to 3 cassette tape drive units P833-002	2 6 7 8 9	A*	5.12
P837-002	Digital input/output control unit (DIOD-2)	2 6 7 8 9	A*	7.1
P840-002	Control unit PTR/PTP/V24 (MCU3)	2 6 7 8 9	A	5.1
P840-003	Control unit CR/LP (MCU2)	2 6 7 8 9	A	5.2
P840-103	Control unit CR/LP (CRLPZ)	1 3 4	A	5.2
P840-141	Control unit PTR/PTP (TRPZ)	1 3 4	A	5.1
P842-001	Character printer		A	5.3
P842-002	Character printer		B*	5.3
P842-003	Character printer		B*	5.3
P842-004	Character printer		B*	5.3
P842-005	Character printer		B*	5.3
P842-006	Character printer		B*	5.3
P842-200	Matrix character printer		X	5.4
P843-001	Equipment shelf	1 2 3 4 6 7 8 9	A	8.1
P843-005	Equipment shelf	2 6 7 8 9	B*	8.1

Type number	Description	Applicable system	Class	Page
P843-009	Terminator	2 6 7 8 9	A	8.1
P843-012	Programming tool for P851-010/012	1 3 4	A	2.2
P843-020	I/O-processor (IOP)	2 6 7 8 9	A	3.1
P843-021	Set of 10 female connectors with 74 points		A	8.2
P843-022	Set of 10 female connectors with 26 points		A	8.2
P843-023	Set of 10 card connectors (female)		B	8.2
P843-024	Set of 10 Euro-card connectors (female), 2*36 pins (wrapped version)		A	8.2
P843-025	General purpose card with general purpose bus logic	2 6 7 8 9	B*	8.1
P843-026	General purpose card	2 6 7 8 9	B*	8.2
P843-027	Set of 10 emitter/receiver packages		B*	8.2
P843-028	Set of 10 Ternet packages		B*	8.2
P843-031	Extension break lines cable, 3 m		A	8.1
P843-035	Extension card for testing P856/7 CPU-card	2 6 7 8 9	A*	8.7
P843-037	Cable 7.5m for connection of a V24 interface to a serial CU	2 6 7 8 9	A*	8.3
P843-038	Cable 7.5m for connection of a V24 interface to P856/7/8/9 CPU	2 6 7 8 9	A*	8.3
P843-040	Cable 7.5m for connection of a display to P856/7	6 7 8 9	A*	8.4
P843-041	Cable 7.5m for connection of a display to V24 Belier CU	2 6 7 8 9	A*	8.4
P843-042	Cable 7.5m for connection of a display to V24 Euro CU (SCUZ)	1 3 4	A*	8.4
P843-043	Cable 5m for connection of a display to the modem panel (current loop)		A*	8.4
P843-044	Cable 7.5m for connection of a display to current loop Euro CU (SCUZ)	1 3 4	A*	8.4
P843-045	Cable 5m for connection of a display to the modem panel (V24)		A*	8.4
P843-047	Cable 7.5m for connection of a display to V24 Euro CU (ASCU4Z)	1 3 4	A*	8.4
P843-048	Cable 7.5m for connection of V24 terminal to serial Euro CU (ASCU4Z)	1 3 4	A*	8.4
P843-050	Cable 7.5m for serial Euro CU (ASCU4Z) open ended (current loop)	1 3 4	A*	8.4
P843-051	Cable 7.5m for connection of a display to V24 Euro CU (P854)	4	A*	8.4
P843-053	General purpose initial program loader	1 2	A	3.2
P843-054	General purpose initial program loader	1 2	A	3.2
P843-060	Programmable real time clock (PRTC)	2 6 7 8 9	A*	3.1
P843-107	Translator card (IOTZ)	1	A	3.3
P843-115	General purpose bus cable with connectors, 3 m		A	8.1
P843-116	Memory module 16k16	2 6	B*	2.2
P843-120	Single I/O-procesoor (IOPZR)	3 4	A	3.1
P843-125	General purpose card with bus control logic	1 3 4	B	8.2
P843-135	Extension card for testing Belier-format control units and I/O-processors	2 6 7 8 9	A*	8.7
P843-160	Programmable real time clock (RTCZ)	1 3 4	A*	3.1
P843-165	Digital clock card (DCCZ)	1 3 4	B*	3.1
P843-180	Dual processing communication subsystem	2 6 7 8 9	B*	7.1
P843-200	Ventilation unit	3 4	A*	3.4
P843-216	Memory module 16k16	2 6 7 8	A*	2.2
P843-232	Memory module 32k16	2 6 7 8	A*	2.2

Type number	Description	Applicable system	Class	Page
P843-235	Extension card for testing Belier-format multiple control units	2 6 7 8 9	A‡	8.7
P843-350	Extension card for testing single-Euro-format cards outside the rack	2 6 7 8 9	A‡	8.7
P843-351	Extension card for testing double-Euro-format cards outside the rack	1 3 4	A‡	8.7
P843-352	Extension card for power supply regulator card	1	A‡	8.7
P843-400	Power supply module (PSUB)	4	A	3.4
P843-402	Power supply module (PSUM)	4	A	3.4
P843-432	Memory module 32k21	6 7 9	A	2.2
P843-464	Memory module 64k21	7 9	A	2.2
P843-500	Hand held control panel (HHCP)	1 3 4	A	3.2
P843-501	Basic system front cover 4U	3 4	A	3.2
P843-502	Basic system front cover 6U	3 4	A	3.2
P843-503	Basic system front cover 4U	3 4	A	3.2
P843-510	Digital extended control panel (FRCP)	4	A	3.3
P843-528	Memory module 128k21	7 9	A	2.2
P843-529	Memory module 128k21	7 9	A	2.2
P843-550	Cable 7m between basic system front cover and hand held control panel	1 3 4	A	3.3
P843-551	Cable 3m between basic system front cover and hand held control panel	1 3 4	A	3.3
P843-552	Cable 3m between CPU and hand held control panel	3 4	A	3.3
P843-608	Memory module 128k21	4	X	2.1
P844-004	Memory module 2k16	1 3	A‡	2.1
P844-016	Memory module 8k16	1 3	A	2.1
P844-061	Memory module master	4	A‡	2.1
P844-110	Control module (V28LCM)	6 7 8 9	B‡	6.3
P844-128	Memory module 64k21 slave	4	A‡	2.1
P845-040	Control unit for serial data transfer (SECU)	6 7 8 9	A‡	5.5
P845-060	Asynchronous medium speed line multiplexor (AMA8A)	2 6 7 8 9	A	6.2
P845-070	Asynchronous medium speed line multiplexor (AMA8C)	2 6 7 8 9	A	6.3
P845-100	Control unit for high level data link procedure (HLCUZ)	1 3 4	A‡	6.1
P845-110	Control unit for high level data link procedure (HLVCUZ)	1 3 4	A	6.1
P845-140	Control unit for serial data transfer (SCUZ)	1 3 4	A	5.5
P845-145	Control unit for serial data transfer (ASCU4Z)	1 3 4	A	5.5
P845-160	Control unit for 1 synchronous or 1 asynchronous line (SALCUZ)	1 3 4	A	6.1
P845-170	Control unit for 1 synchronous line (SLCUZ)	1 3 4	A	6.1
P846-060	Multiple control unit (ALCU2)	2 6 7 8 9	B‡	6.2
P846-070	Multiple control unit (ALCU4)	2 6 7 8 9	A	6.2
P847-060	Multiple control unit (SLCU2S)	2 6 7 8 9	A	6.1
P847-070	Multiple control unit (SLCU4)	2 6 7 8 9	B‡	6.2
P847-110	Control unit for high level data link procedure (HLVCUB)	2 6 7 8 9	A	6.2
P849-029	Modem panel		A	8.2
P849-042	Power distribution panel 14A		A	8.6

Type number	Description	Applicable system	Class	Page
P849-043	Power distribution panel 25A		A	8.6
P849-044	Filter panel for disc		A	8.6
P849-046	Front panel, height 1U		A	8.6
P849-047	Front panel, height 3U		A	8.6
P849-048	Front panel, height 5U		A	8.6
P849-049	Front panel, height 7U		A	8.6
P849-070	Ventilation unit 2 fans		A	8.6
P849-071	Ventilation unit 4 fans		A	8.6
P849-076	Basic 19" cabinet, 36 units		A	8.5
P849-077	Basic 19" cabinet, 36 units		A	8.5
P849-078	Pedestal for 19" cabinet		A	8.6
P849-130	Panel for visualizing up to 32 "Dataset ready"signals		B‡	8.2
P849-176	Extension 19" cabinet, 36 units, non-equipped		A	8.5
P849-177	Extension 19" cabinet, 36 units		A	8.5
P849-230	Display equipment for 8 "Dataset ready" signals		B‡	8.2
P849-277	Basic 19" cabinet, 36 units		A‡	8.5
P849-336	Cable 5m between modem panel P849-029 and 1 V24 terminal	2 6 7 8 9	A	8.3
P849-346	Cable 5m between modem panel P849-029 and V24 modem	2 6 7 8 9	A	8.3
P849-356	Cable 7.5m between line CU (SALCUZ/HLCUZ) and V24 terminal	1 3 4	A	8.4
P849-357	Cable 7.5m between line CU (SCUZ) and V24 terminal	1 3 4	A	8.4
P849-358	Cable 7.5m between line CU (SCUZ) and CL terminal	1 3 4	A	8.4
P849-359	Cable 1.5m between modem panel and V24 Euro CU (ASCU4Z)	1 3 4	A	8.4
P849-360	Cable 1.5m between modem panel and V24 Euro CU (SALCUZ/HLCUZ)	1 3 4	A	8.4
P849-377	Extension 19" cabinet, 36 units		A	8.5
P849-514	Cable 7.5m between line CU (SALCUZ/HLCUZ) and V24 modem	1 3 4	A	8.4
P849-524	Cable 3m between modem panel P849-029 and line control units	2 6 7 8 9	A‡	8.3
P849-534	Cable 3m between modem panel P849-029 and line control units	2 6 7 8 9	A‡	8.3
P849-624	Cable 3m between modem panel P849-029 and line control unit P845-060	2 6 7 8 9	A‡	8.3
P849-634	Cable 3m between modem panel P849-029 and line control unit P845-060	2 6 7 8 9	A‡	8.3
P849-724	Cable 3m between modem panel P849-029 and line control unit P845-070	2 6 7 8 9	A‡	8.3
P849-734	Cable 7.5m between line control unit P845-070 and 4 external units	2 6 7 8 9	A‡	8.3
P849-824	Cable 3m between line control unit P844-110 and external equipment	2 6 7 8 9	B‡	8.3
P849-910	Testtool for DPCS-system P843-180		B‡	8.7
P849-925	Testtool for V28LCM		B‡	8.7
P849-930	Testtool for AMA8C		B	8.7
P849-940	Set of 10 Cannon connectors (male) 25 pins		A‡	8.2
P849-944	Set of 10 Cannon connectors (female) 25 pins		A‡	8.2
P851-004	Memory module 4k16	1 3	A‡	2.1
P851-005	Memory module 8k16	1 3	A‡	2.1
P851-008	Memory module 4k16 REPROM	1	B‡	2.2

Type number	Description	Applicable system	Class	Page
P851-010	Memory card for up to 16k16 EPROM chips	1 3 4	A*	2.2
P851-012	Memory card for up to 32k16 EPROM chips	1 3 4	A	2.2
P851-016	Memory module 16k16	1 3 4	A	2.1
P851-017	Memory module 32k16	1 3 4	A	2.1
P851-020	I/O-processor (IOPI)	1	A	3.1
P851-029	Memory card for up to 4k16 REPROM chips	1 3	A*	2.2
P851-032	Full control panel	1	B*	3.2
P851-034	Control panel interface for hand held control panel	1	B*	3.2
P851-046	Battery pack	1	A	3.3
P851-048	Central processor front cover	1	A*	3.2
P851-049	Central processor cover plate	1	A*	3.2
P851-050	Cable support rack and panel	1 3 4	A	3.4
P851-100	P851 Basic system	1	A	1.2
P851-200	P851 Basic system	1	A	1.2
P852-030	Minipanel for P852	2	B*	3.2
P852-100	P852 Basic system	2	B*	1.2
P852-200	P852 Basic system	2	B*	1.2
P852-400	P852 Basic system	2	B*	1.2
P853-200	P853 Basic system	3	A*	1.3
P853-257	P853 Basic system	3	A*	1.3
P853-300	P853 Basic system	3	A*	1.3
P853-357	P853 Basic system	3	A*	1.3
P854-020	Floating point processor (FPPE)	4	A	3.4
P854-300	P854 Basic system	4	A	1.3
P854-400	P854 Basic system	4	A	1.3
P856-032	Extended control panel	6	B*	3.2
P856-100	P856 Basic system	6	B*	1.3
P856-400	P856 Basic system	6	B*	1.3
P857-020	Floating point processor (FPP)	7 8 9	A	3.4
P857-400	P857 Basic system	7	A*	1.3
P857-500	P857 Basic system	7	A*	1.3
P858-400	P858 Basic system	8	A*	1.4
P858-500	P858 Basic system	8	A*	1.4
P859-400	P859 Basic system	9	A	1.4
P870-001	P870 Single board computer (SBC)		A	4.1
P870-200	Development tool		A	4.1
P870-201	Card cage and PC back panel		A*	4.1
P870-256	P870 Basic system		A	4.2
P870-356	P870 Basic system		A	4.2
P870-570	SBC Testtool (TSBC)		A	4.2