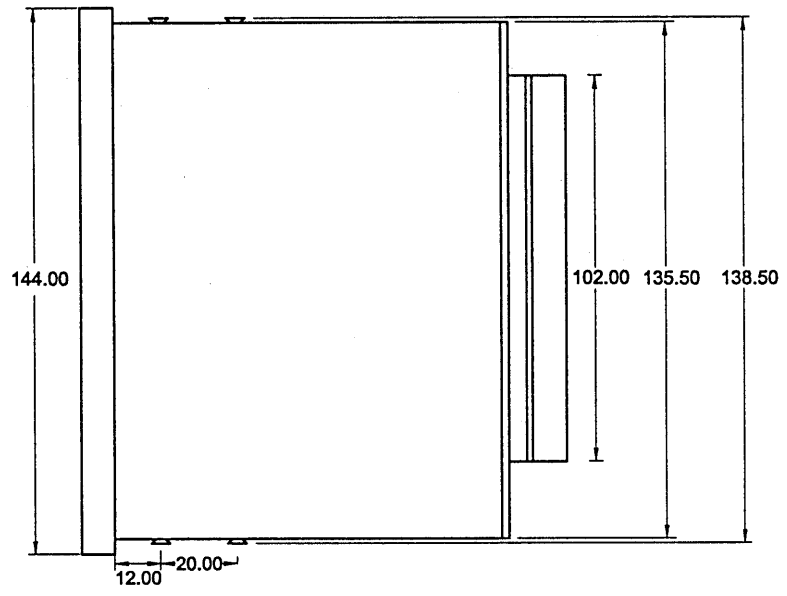
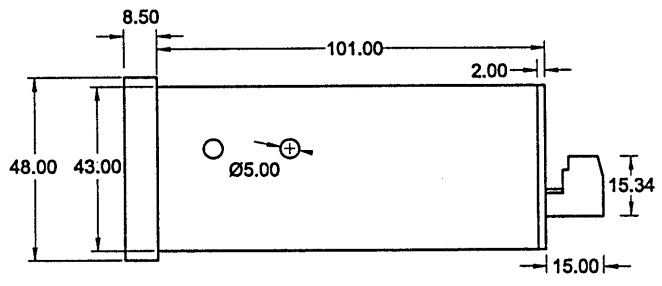


**Digital Remote Displays,  
Parallel, Serial**

**Dimensions**

DAP/DAS 20/25 (144x48)

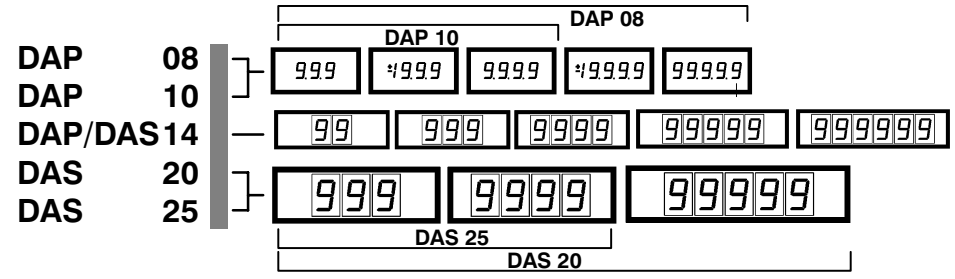


Dimensions in mm

- Specifications subject to change without notice; date of issue 07/08 -

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**Product Outline**

multiplex active high 24V multiplex active low 24V parallel active high 24V parallel active low 24V multiplex active high 5V multiplex active low 5V parallel active high 5V parallel active low 5V	DAP	08 10	-	30 31 40 41 50	A B C D E F G H	1 3 4	R G	- -4 -7
multiplex active high 24V	DAP	14	-	20 30 40 50 60	A	1	R G	- -4
RS232C / TTY RS 422 RS485	DAS	14	-	20 30 40 50 60	A B D	1	R G	- -4
RS232C / TTY / RS485	DAS	20 25	-	30 40 50	A	1 2	R G	- -4

**Technical Data** refer to Product Guide No. 713.U.001.##

**Installation**

**Mounting**

Insert the device through cutout from the front of the panel. Fit the two screw-clamps supplied to the countersunk screws located on each side of the case and tighten the screw-spindles.

**Connection**

**Caution** All connection leads shall be voltage-free prior to connecting the device.  
Verify input configuration and auxiliary supply (see type label on the device).



Digital Remote Displays,  
Parallel, Serial

**Note** To avoid impairments by interference voltages, use – if necessary – screened or twisted leads positioned away from interference-subjected lines.

Terminals screw terminals on terminal block

Wire Cross-Section 2.5 mm<sup>2</sup> max.

Connect the device following the pin assignment on the type label.

**Caution** Verify meter connections before applying power to the device. Adjust an activated DAP/DAS by means of an **isolated screw driver** only.

Connection

DAP 08/10

Sub-D Connector Pin Assignment, 26 poles

Input multiplex

Input parallel

1	A	} BCD Input
2	B	
3	C	
4	D	
5	LE	} 1 <sup>st</sup> Digit
6	DP	
7	LE	} 2 <sup>nd</sup> Digit
8	DP	
9	LE	} 3 <sup>rd</sup> Digit
10	DP	
11	LE	} 4 <sup>th</sup> Digit
12	DP	
13	LE	} 5 <sup>th</sup> Digit
14	DP	
15	n.c.	
16	n.c.	
17	n.c.	
18	n.c.	
19	n.c.	
20	n.c.	
21	+ V Ucc	
22	0 V Ucc/BCD	
23	ST	
24	DT	
25	n.c.	
26	n.c.	

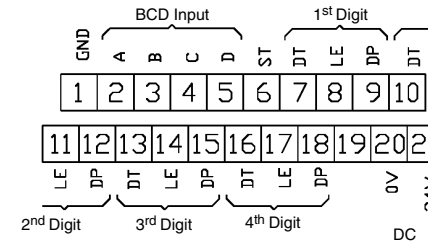
1	A	} 1 <sup>st</sup> Digit
2	B	
3	C	
4	D	
5	A	} 2 <sup>nd</sup> Digit
6	B	
7	C	} 3 <sup>rd</sup> Digit
8	D	
9	DP	} 4 <sup>th</sup> Digit
10	A	
11	B	} 5 <sup>th</sup> Digit*
12	C	
13	D	
14	DP	
15	A	
16	B	
17	C	
18	D	
19	DP	
20	LE	latch
21	+ V Ucc	
22	0 V Ucc/BCD	
23	ST	
24	DT	
25	n.c.	
26	n.c.	

\*DAP 08 only

DAP 14

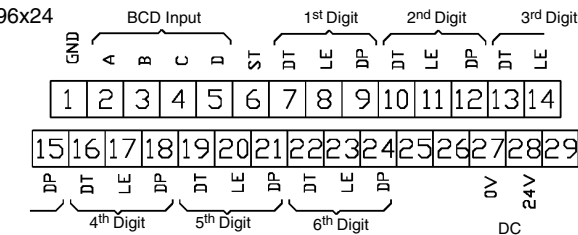
plug-in terminal barrier strip, double-row

72x24



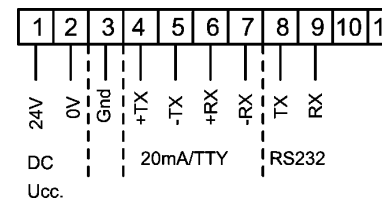
**Note:** Close mounting on top of each other will generally not be possible due to both terminal barrier strips and cables.

96x24



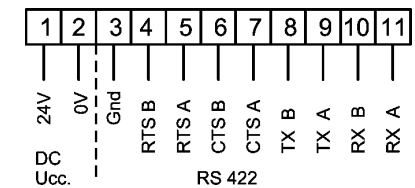
DAS 14 A Input

plug-in terminal barrier strip



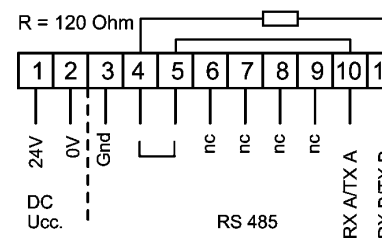
DAS 14 B Input

plug-in terminal barrier strip



DAS 14 D Input

plug-in terminal barrier strip



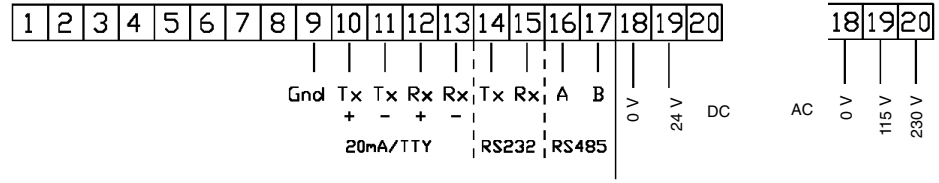
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Digital Remote Displays,  
Parallel, Serial

DAS 20/25

plug-in terminal barrier strip



DAP 08/10/14 Parallel Displays

DAP 08/10 Functional Inputs

(active high, independent of BCD-signals, pulse width 2 ms min.)

**Note** In the version "active high", the functional inputs should not be connected if a L-signal is permanently desired.  
In the version "active low", the functional inputs should be switched to "High" if a H-signal is permanently desired.

signal	active high H-signal	active high L-signal	active low H-signal	active low L-signal
ST segment test	all segments & DP light	standard mode	standard mode	all segments & DP light
DT blanking	display blanked	display visible	display visible	display blanked
DP decimal point	DP lights	DP blanked	DP blanked	DP lights
LE latch enable	display ≠ BCD-input	display ≡ BCD-input	display ≡ BCD-input	display ≠ BCD-input
After changing	from L to H	from L to H	from H to L	from H to L

the display stores the information which existed before changing the signal at the BCD-input.

ST has first priority

DT has second priority

BCD-Codes DAP 08/10

Inputs active high

Inputs active low

Input D C B A ST DT LE	Digit 1 8
L L L L	0
L L L H	1 1
L L H L	• 2
L L H H	- 3
L H L L	4 4
L H L H	5 5
L H H L	6 6
L H H H	7 7
H L L L	8 8
H L L H	9 9
H L H L	blank
H L H H	blank
↓	↓
H H H H	blank
X X X X L L H	Latch
X X X X H X X	test
X X X X L H X	blank

Input D C B A ST DT LE	Digit 1 8
H H H H	0
H H H L	1 1
H H L H	• 2
H H L L	- 3
H L H H	4 4
H L H L	5 5
H L L H	6 6
H L L L	7 7
L H H H	8 8
L H H L	9 9
L H L H	blank
L H L L	blank
↓	↓
L L L L	blank
X X X X H H L	Latch
X X X X L X X	test
X X X X H L X	blank

BCD-Bus-Inputs 10<sup>0</sup> = position to one  
10<sup>1</sup> = position to ten  
10<sup>2</sup> = position to hundred  
10<sup>3</sup> = position to thousand  
10<sup>4</sup> = position to tenthousand

The connections are available resp. not available depending on number of positions.

A Input = Valence 2<sup>0</sup>  
B Input = Valence 2<sup>1</sup>  
C Input = Valence 2<sup>2</sup>  
D Input = Valence 2<sup>3</sup>

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## Digital Remote Displays, Parallel, Serial

### DAP 14 Functional Inputs

(active high, independent of BCD-signals, pulse width 2 ms min.)

**Note** In the version "active high", the functional inputs should not be connected if a L-signal is permanently desired.

functional inputs	H-signal	L-signal
ST segment test	all segments and DP light	standard mode
DT blanking	display blanked	display visible
DP decimal point	DP lights	DP blanked
LE latch enable	display $\neq$ BCD-input	display $\equiv$ BCD-input

After changing from L to H the display stores the information which existed at the BCD-input before signal-change

ST has first priority

DT has second priority

### DAP 14 BCD Codes

Input Code	Data Inputs								Functional Inputs (X = H or L)				
	A	L	H	L	H	L	H	L	H	L	H	L	H
BCD-switch	B	L	L	H	H	L	L	H	H	L	L	H	H
	C	L	L	L	L	H	H	H	H	L	L	L	H
	D	L	L	L	L	L	L	L	H	H	H	H	H
BCD*	0 1 2 3 4 5 6 7 8 9 -								Data	X	X	X	
Hex**	0 1 2 3 4 5 6 7 8 9 A B C D E F								Display	blank	latch	test	

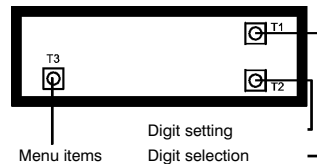
\* BCD display with type DAP 14

\*\* Hex 0-F display is possible only with type DA13-NHxx.

## DAS 14/20/25 Operating Elements and Displays

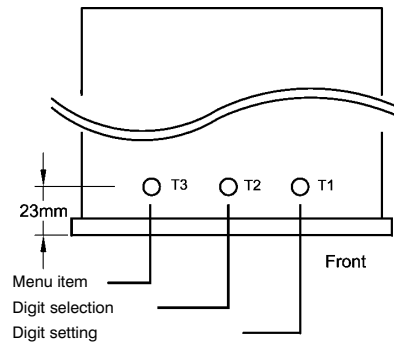
### DAS 14 - 20/30/40/50

Operating elements behind detachable display lens

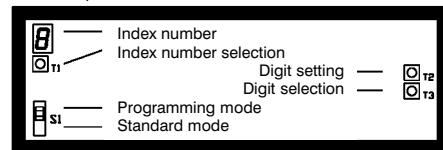


### DAS 14 - 60

Operating elements on top of case



### DAS 20/25



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## Programming DAS 14 Serial Displays

The communication and display parameters can be programmed with 3 keys.

### Operating Elements

- T3 key Switch over from standard mode to programming mode, select the menu items and switch back to normal operation.
- T2 key Select digit to be set.  
(The digit selected will be accentuated by the flashing decimal point.)
- T1 key Set digit selected.

### Programming the Device

- Press T3 key  
The device selects programming mode or the next menu item.

Menu Item	Display	Description
0	Pr 0	0 Interface RS 232 1 20 mA / TTY 2 RS 485
1	Pr 1	12 Baud rate 1200 bits per second 24 2400 bits per second 48 4800 bits per second 96 9600 bits per second 192 19200 bits per second
2	Pr 2	1 Data format Parity Data bits 2 none 8 bits 3 even 7 bits 4 odd 7 bits 5 even 8 bits 6 odd 8 bits
3	Pr 3	Telegram setup * 1 D1 ... Dn Time difference between 2 telegrams 200 ms min. 2 STX D1 ... Dn ETX 3 STX Address Address D1 ... Dn ETX 4 SOH Address Address STX D1 ... Dn ETX 5 D1 ... Dn CR/LF 6 D1 ... Dn CR
4	Pr 4	- 0 Device address 0 (one digit 1 ... 9)* - 1 1 ... - 9 9 00 Device address 00 (two digits 00 ... 99) 01 01 ... 99 99

Digital Remote Displays,  
Parallel, Serial

5	Pr 5	00	Write direction right → left	Pre-zero extraction without
		01	right → left	with
		10	left → right	without
		11	left → right	with
		...		
6	Pr 6	00	Suppression of 0	
		...	to	
		99	99 leading characters	
7	Pr 7	0	no decimal point	
		1	10 <sup>1</sup> decimal point (2 <sup>nd</sup> digit)	
		2	10 <sup>2</sup> decimal point (3 <sup>rd</sup> digit)	
		3	10 <sup>3</sup> decimal point (4 <sup>th</sup> digit)	
		4	10 <sup>4</sup> decimal point (5 <sup>th</sup> digit)	
		5	10 <sup>5</sup> decimal point (6 <sup>th</sup> digit)	
8	Pr 8	00	Timeout function OFF	
		01	Display shows --   - 1 sec. after receiving the last character	
		...	...	
		99	Display shows --   - 99 seconds after receiving the last char.	

**\*Note** If a single-digit address (-0 ... -9) is entered in menu item 3, the telegram setup is shortened accordingly.

**Back to Standard Mode**

- Press T3 key
- The display indicates "EEP" for approximately 10 seconds.
- Within this time, the parameters set before will be written into the EEPROM.

**DAS 14/20/25 Character Range**

Hex	20	2D	2E	30	31	32	33	34	35	36	37	38	39	3D	41	43	45	46	48	4C	50	55	5D	5F	62	63	64	68	6E	6F	72	75	78	7E
Digit	-	.	0	1	2	3	4	5	6	7	8	9	=	A	C	E	F	H	L	P	U	]	_	b	c	d	h	n	o	r	u	°	†	

Unknown character: ☐

**Programming DAS 20/25 Serial Displays**

The communications parameters and sorts of indication can be programmed by means of 3 keys and the additional small one-digit display (index number).

**Operating Elements**

- Slide Switch S1 Switch over between standard mode and programming mode. Index number "0" will be displayed when entering programming mode. "EEP" will flash on the large display when leaving the programming mode; During this time the values programmed will be stored in the EEPROM.

- T1 key Select programming step / index number (The respective programming step will be indicated on the small one-digit LED-display - the so-called "index number" InN - when being in the programming mode.)
- T2 key Set digit selected. (Each full digit position may be set between 0 and 9.)
- T3 key Select digit to be set. (The digit selected will be accentuated by the lit decimal point.)

All operating elements are front accessible after front bezel and display lens have been removed.

**Programming the Device**

- Move S1 slide switch into "Programming Mode" position
- The device selects programming mode.
- Press T1 key
- The device selects the next menu item.

Index Number	Display	Description
0	-- 0 -- 1 -- 2	Select input used / interface: RS 232 C / V.24 20 mA / TTY RS 485
1	_ 1 2 _ 2 4 _ 4 8 _ 9 6	Select baud rate: 1200 baud 2400 baud 4800 baud 9600 baud
2	-- 0 -- 1 _ 0 _ _ 1 _ 0 _ _ 1 _ _	Adjust of number data bits and parity: 7 data bits 8 data bits without parity bit with parity bit even parity odd parity
3	-- 0 -- 1 _ 0 _ _ 1 _	Select protocol control character: without STX/ETX with STX/ETX without SOH with SOH
4	_ 0 0 _ _ 1 _ 0 1 ... _ 9 9	Select addressing used: none addressing with one byte: 1 <sup>st</sup> device addressing with two bytes: 1 <sup>st</sup> device ... addressing with two bytes: 99 <sup>th</sup> device

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Digital Remote Displays,  
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5	-- 0 -- 1 _ 0 _ _ 1 _	Adjust pre-zero extraction / write direction: without pre-zero extraction with pre-zero extraction write direction left → right write direction right → left
6	_ 0 0 _ 0 1 . . . _ 9 9	Suppression of 0 to 99 leading characters from the entire transmission telegram: suppress no characters suppress 1 character suppress 99 characters
7	_ 0 0 _ 0 1 . . . _ 9 9	Suppression of 0 to 99 leading characters from the data block for the indication: suppress no characters suppress 1 character suppress 99 characters

**Back to Standard Mode**

- Move S1 slide switch into "Standard Mode" position  
 The display indicates "EEP" for approximately 10 seconds.  
 Within this time, the parameters set before will be written into the EEPROM.

**DAS 20/25 Software Functions**

Function	ASCII	Description
segment test	\$0	segment test on (until the next telegram follows)
forwarding zeros	\$1 \$2	forwarding zeros are displayed forwarding zeros are extracted
symbols flashing	\$32	"2" flashes
display flashing	\$4 \$5	flashing on flashing off
write direction	\$6 \$7	left → right right → left

**Set-up of Data- and Transmission Blocks DAS 20/25**

Data Blocks

start bit	7 bits data	parity	stop bit	stop bit
-----------	-------------	--------	----------	----------

start bit	8 bits data	stop bit	stop bit
-----------	-------------	----------	----------

start bit	8 bits data	parity	stop bit	stop bit
-----------	-------------	--------	----------	----------

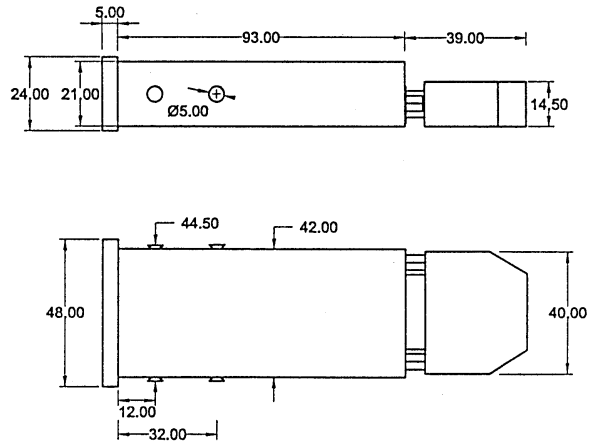
Transmission Blocks

Examples of a 4-digit display (displaying "1234"):

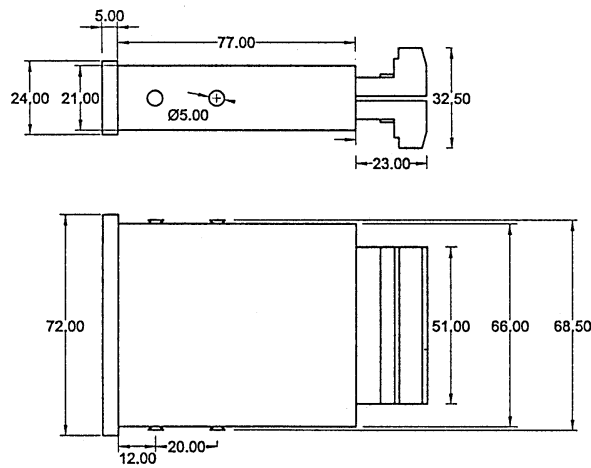
Set-up	Transmission	ASCII symbol
without control symbol	1 <sup>st</sup> byte data	31H
	2 <sup>nd</sup> byte data	32H
	3 <sup>rd</sup> byte data	33H
	4 <sup>th</sup> byte data	34H
STX / data / ETX	1 <sup>st</sup> byte STX	02H
	2 <sup>nd</sup> byte data	31H
	3 <sup>rd</sup> byte data	32H
	4 <sup>th</sup> byte data	33H
	5 <sup>th</sup> byte data	34H
	6 <sup>th</sup> byte ETX	03H
STX / address / data / ETX	1 <sup>st</sup> byte STX	02H
	2 <sup>nd</sup> byte address	3xH
	3 <sup>rd</sup> byte address	3xH
	4 <sup>th</sup> byte data	31H
	5 <sup>th</sup> byte data	32H
	6 <sup>th</sup> byte data	33H
	7 <sup>th</sup> byte data	34H
	8 <sup>th</sup> byte ETX	03H
SOH / address / STX / data / ETX	1 <sup>st</sup> byte SOH	01H
	2 <sup>nd</sup> byte address	3xH
	3 <sup>rd</sup> byte address	3xH
	4 <sup>th</sup> byte STX	02H
	5 <sup>th</sup> byte data	31H
	6 <sup>th</sup> byte data	32H
	7 <sup>th</sup> byte data	33H
	8 <sup>th</sup> byte data	34H
	9 <sup>th</sup> byte ETX	03H

Dimensions

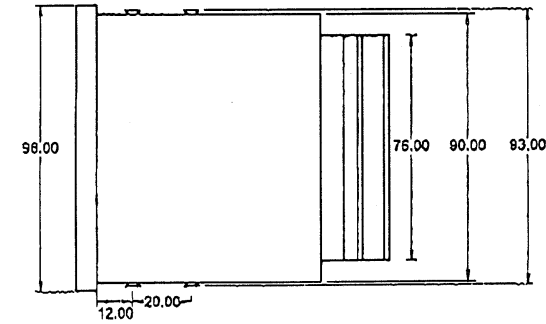
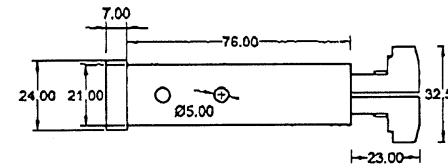
DAP 08/10 (48x24)



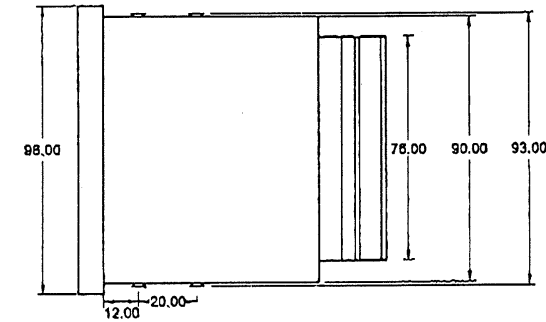
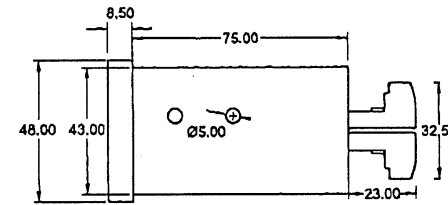
DAP 08/10 ... -7 as well as DAP/DAS 14 ... 20/30/40 (72x24)



DAP/DAS 14 ... 50/60 (96x24)



DAP/DAS 14 ... -4 (96x48)



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