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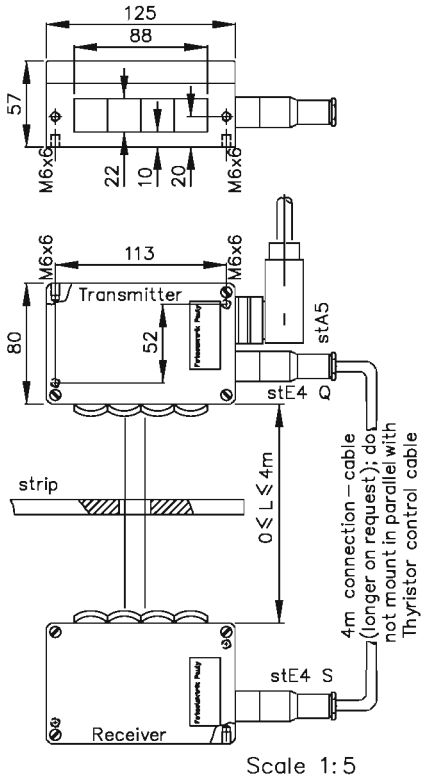
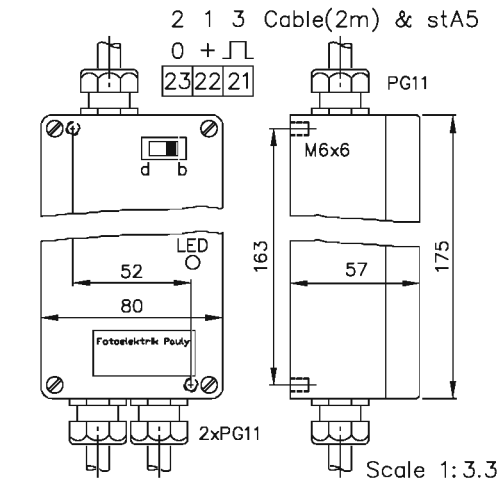
Hole Detector Type PP2441(q)/88/R26

For Detection Of Welded Seams



Scale 1:5



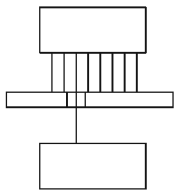
Scale 1:3.3

Time Delay: 0-3s

Control unit
PP83201/2 z3

A	B	C	D			
1	NC	NC	2	3	4	5

L1 N Relay
230VAC: Br B-C
115VAC: Br A-C & B-D



0 - 4m
ø ≥ 2 mm

Hole Detector

PP2441(q)/88
R26

Order no.:

4311

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 2000g
Protection Mode	IP65
Supply	230/115VAC;10VA
Output	Relay 250VAC/110VDC, 8A,150W/1500VA, 1xCh, R
Switching Mode	bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppress.	forced synchronisation
Access Time q	<2ms/switch Transition (optional)
normal	<12ms/switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0-3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C

Accessories:

Cooling Water Flange 2xKW26 (then milled wall, y)

Special Design (optional):

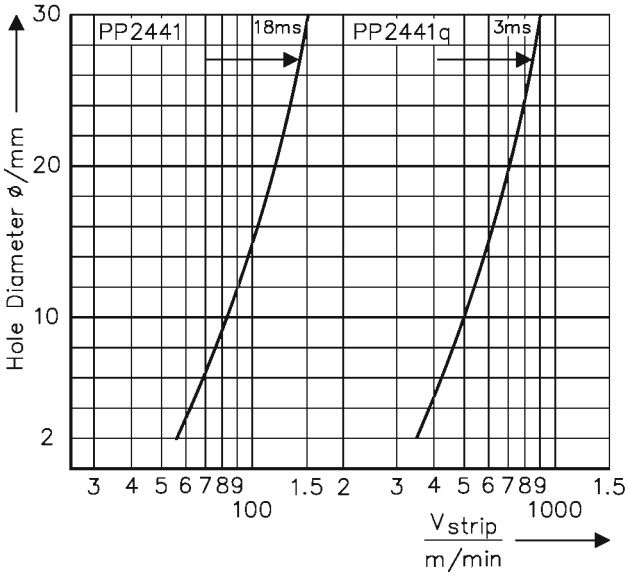
Supply	24VDC, 42-48VAC
Output	pnp, e2; npn, e3; Optocoupler, e1 antival. pnp (npn), e4 (e5)
Heat-protected optical	system, pl

Application:

Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.



4311 DE
E_ 4311 1
(18.12.89 kg) (18.11.04 mj) (02.08.02 tb) (21.06.02 tb)
(09.06.97 tb) 30.03.07 tb

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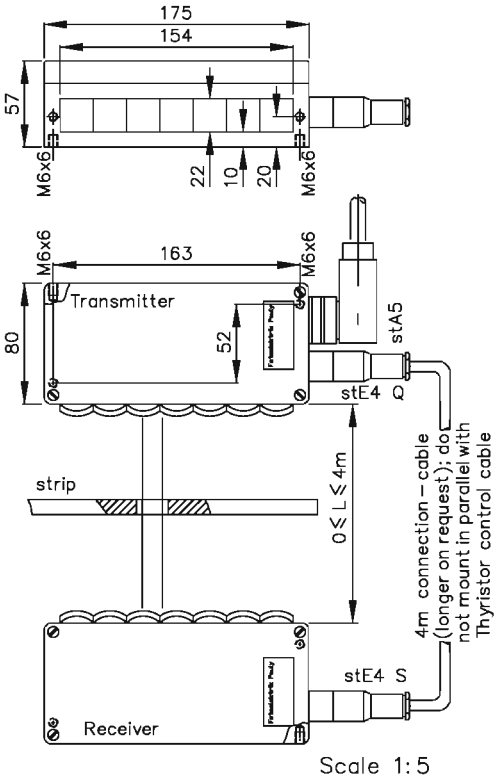
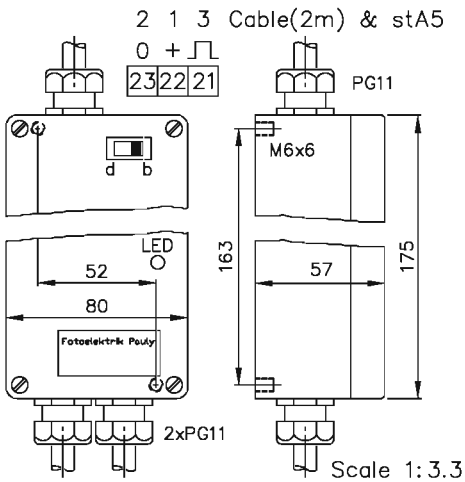
Hole Detector Type PP2441(q)/154/R27

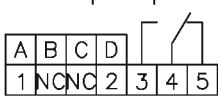
For Detection Of Welded Seams



Scale 1:5



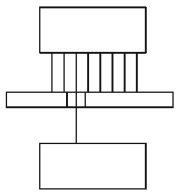
Scale 1:3.3



L1 N Relay
230VAC: Br B-C
115VAC: Br A-C & B-D

Time Delay: 0...3s

Control unit
PP83201/2 z3



0 - 4m
ø ≥ 2 mm

Hole Detector

PP2441(q)/154
R27

Order no.:

4312

Application:

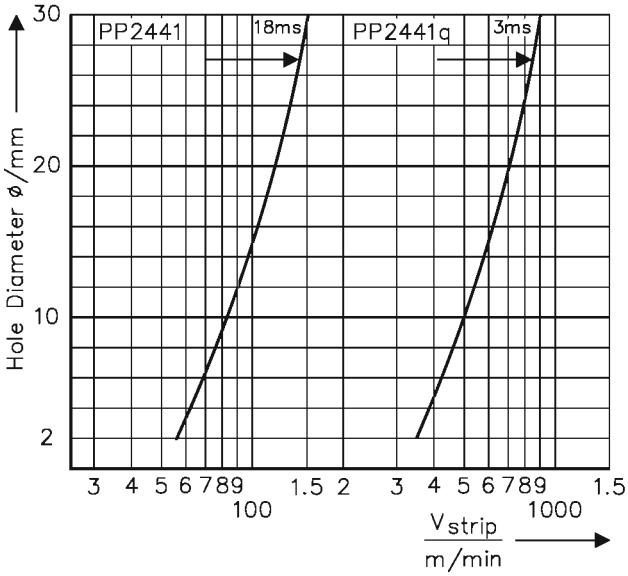
Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 2200g
Protection Mode	IP65
Supply	230/115VAC;10VA
Output	Relay 250VAC/110VDC, 8A,1500VA/150W, 1xCh, R
Switching Mode	bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppress.	forced synchronisation
Access Time q	<2ms/switch Transition
normal	<12ms/switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0...3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C



Accessories:

Cooling Water Flange 2xKW27 (then milled wall, y)

Special Design:

Supply	24VDC, 42...48VAC
Output	pnp, e2; npn, e3; Optocoupler, e1 antival. pnp (npn), e4 (e5)
Heat-protected optical	system, pl

4312 DE E_ 4312 1 (18.12.89 kg) (09.06.97 tb) (21.06.02 tb) (02.08.02 tb) (18.11.04 mj) 30.03.07 tb

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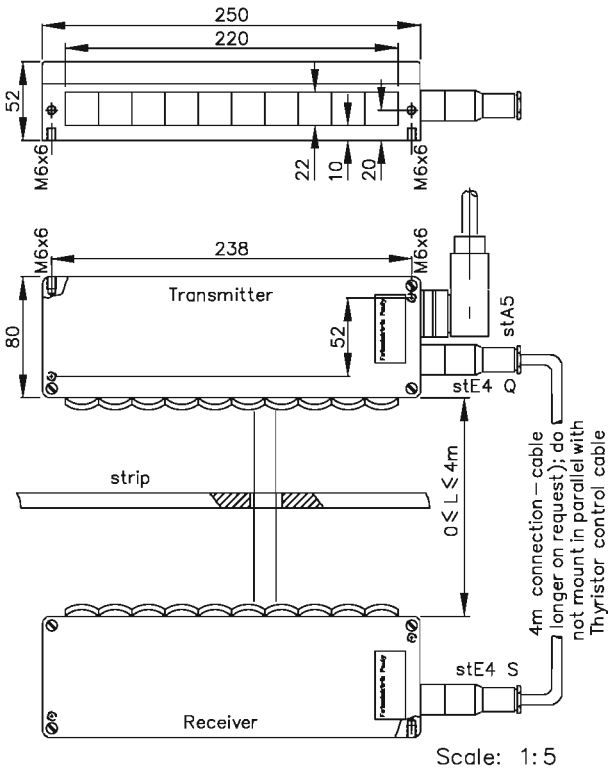
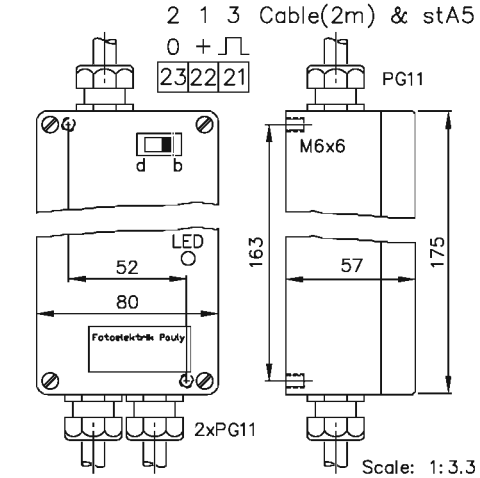
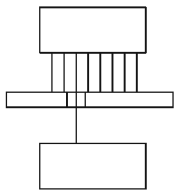
Hole Detector Type PP2441(q)/220/R28

For Detection Of Welded Seams







0 - 4m
ø ≥ 2 mm

Hole Detector

PP2441(q)/220
R28

Order- no.:

4313

Technical Characteristics:

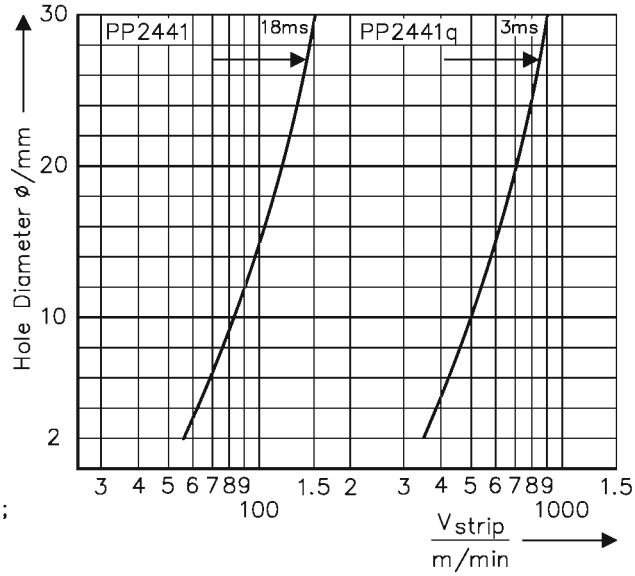
Housing	Al-Cast
Weight	approx. 2500g
Protection Mode	IP65
Supply	230/115VAC, 10VA
Output	Relay 250VAC/110VDC, 8A,1500VA/150W, 1xCh, R
Switching Mode	bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppressor	forced synchronisation
Access Time q	<2ms/switch Transition
normal	<12ms/switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0...3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C

Application:

Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.



Accessories:

Cooling Water Flange 2xKW28 (then milled wall, y)

Special Design:

Supply Voltage	24VDC, 42...48VAC
Outputs	pnp, e2; npn, e3; Optocoupler, e1; antival. pnp (npn), e4 (e5)
Heat-protected optical	system, pl

4313 DE
E_ 4313 1
(19.12.89 kg)
(20.06.95 tb)
(30.07.96 tb)
(17.06.02 tb)
(02.08.02 tb)
(18.11.04 mj)
30.03.07 tb

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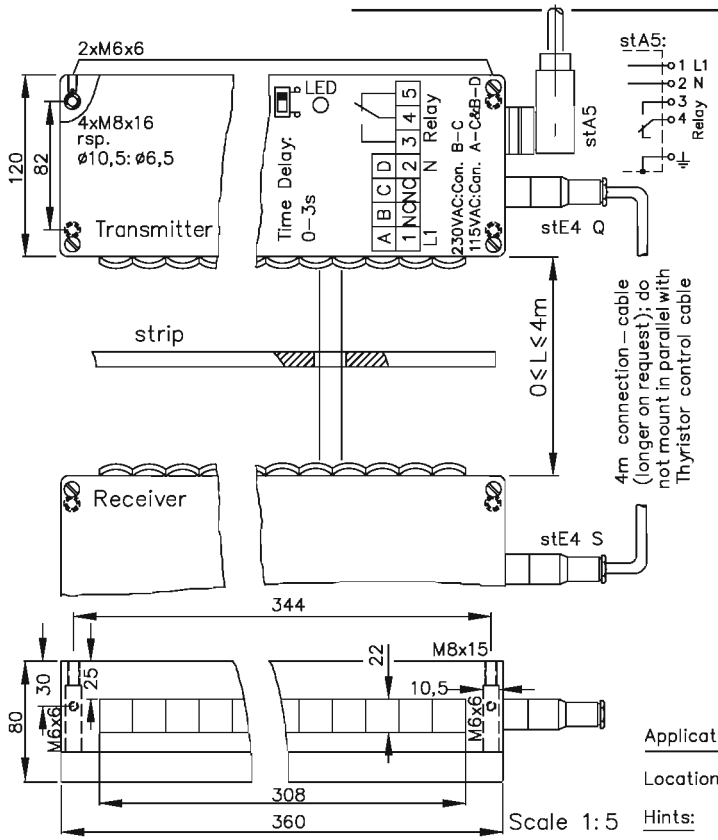
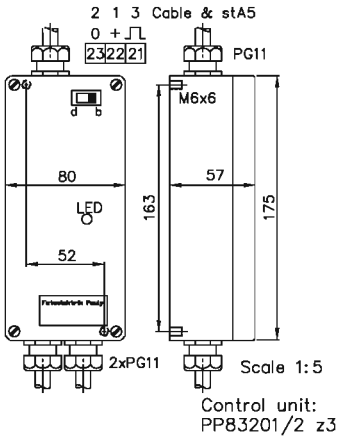
Hole Detector Type PP2441(q)/308/R153

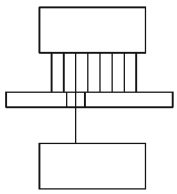
For Detection Of Welded Seams



The external control unit PP83201/2 is only necessary for special connections of several hole detectors. Normaly, the power supply is placed in the PP2441/R153 transmitter.



Control unit:
PP83201/2 z3



0 - 4m
ø ≥ 2 mm

Hole- Detector

PP2441(q)/308
R153

Order- no.:

4314

Application:

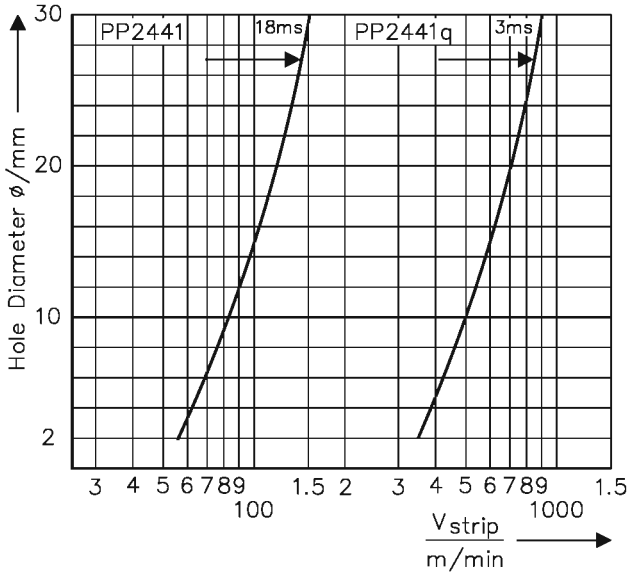
Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 5000g
Protection Mode	IP65
Supply	230VAC/10VA
Output	Relay, 5A, 900VA, 1xCh, R
Switching Mode	Bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppressor	Force Synchronisation
Access Time q	<2ms/Switch Transition (optional)
normal	<12ms/Switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0-3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C



Accessories:

Cooling Water Flange 2xKW153 (then milled wall, y)

Special Design (optional):

Heat-protected optical system, pl
Supply Voltage 24VDC, 42...48VAC, 115VAC
Outputs pnp, e2; npn, e3; Optocoupler, e1

4314 DE
E_ 4314 1
(19.12.89 kg)
(19.06.95 tb)
(28.10.96 tb)
(12.06.97 tb)
(17.06.02 tb)
(02.08.02 tb)
(07.12.04 mj/tb)
(02.11.06 tb)
30.03.07 tb

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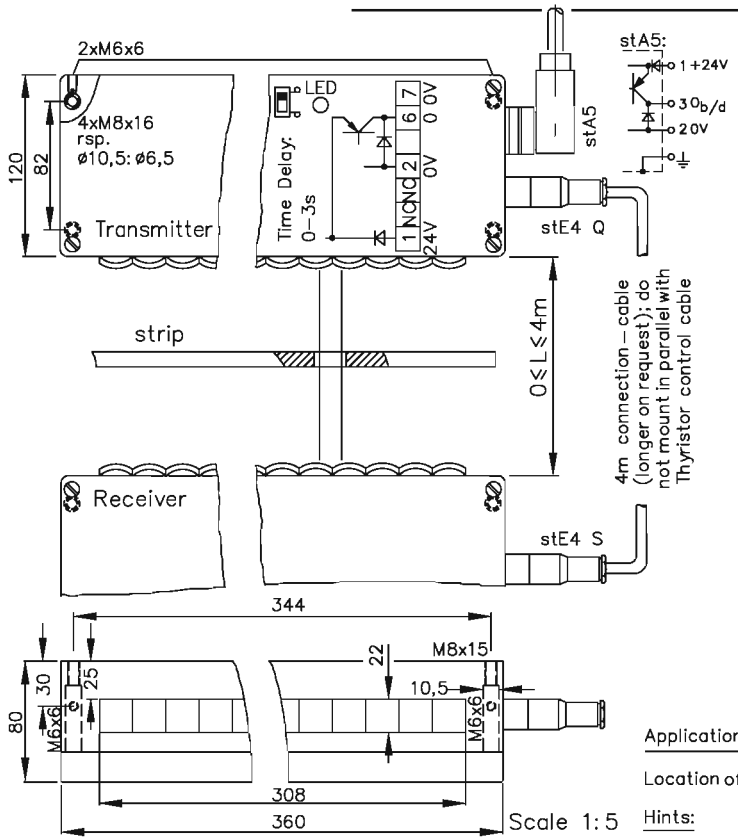
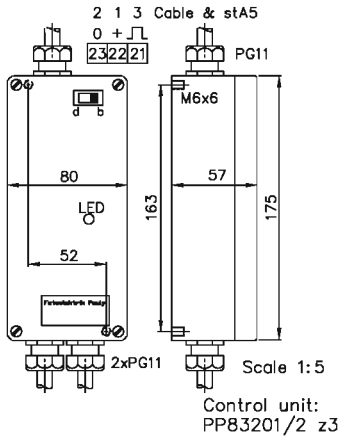
Hole Detector Type PP2441(q)/308/R153

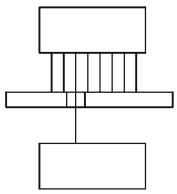
For Detection Of Welded Seams



The external control unit PP83201/2 is only necessary for special connections of several hole detectors. Normaly, the power supply is placed in the PP2441/R153 transmitter.



Control unit:
PP83201/2 z3



0 - 4m
ø ≥ 2 mm

Hole- Detector

PP2441(q)/308
R153

Order- no.:

4314

Application:

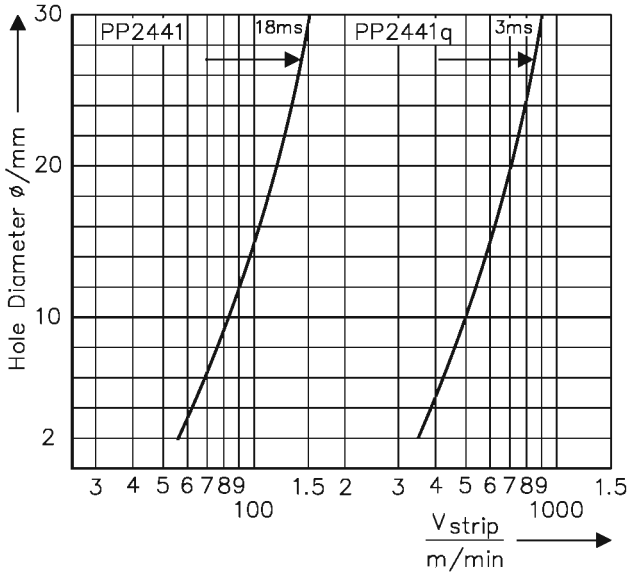
Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 5000g
Protection Mode	IP65
Supply	24VDC/100mA
Output	pnp 60mA s.c.prot.,e2
Switching Mode	Bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppressor	Force Synchronisation
Access Time q	<2ms/Switch Transition (optional)
normal	<12ms/Switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0-3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C



Accessories:

Cooling Water Flange 2xKW153 (then milled wall, y)

Special Design (optional):

Heat-protected optical system, pl
Supply Voltage 42...48VAC, 115VAC, 230VAC
Outputs npn, e3; Optocoupler, e1
Relay, 5A, 900VA, 1xCh, R

(07.12.04 mj/tb) (02.11.06 tb) 30.03.07 tb
(28.10.96 tb) (12.06.97 tb) (17.06.02 tb) (02.08.02 tb)
4314 DE E_ 4314 1 (19.12.89 kg) (19.06.95 tb)

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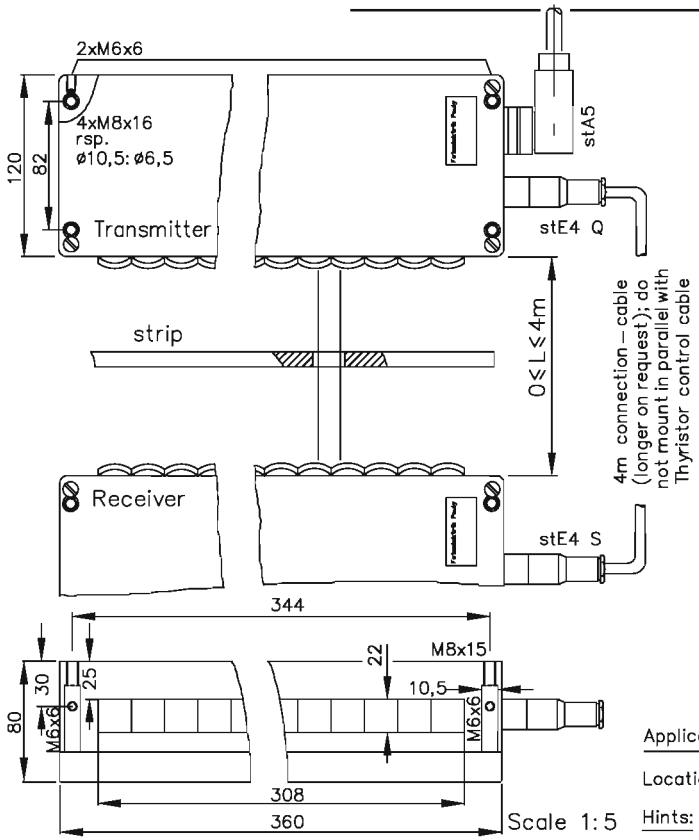
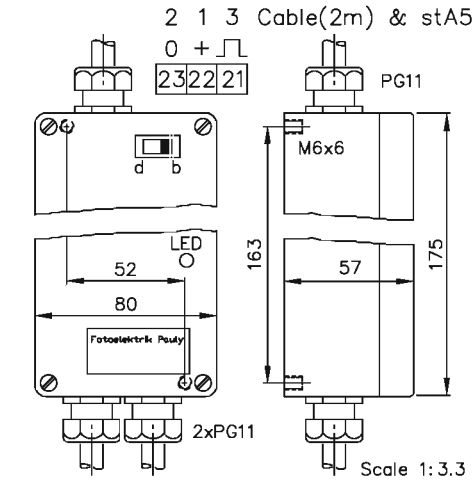
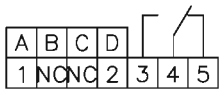
Hole Detector Type PP2441(q)/308/R153*20

For Detection Of Welded Seams



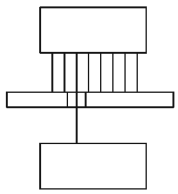




L1 N Relay
230VAC: Br B-C
115VAC: Br A-C & B-D

Time Delay: 0-3s

Control unit
PP83201/2



0 - 4m
ø ≥ 2 mm

Hole- Detector

PP2441(q)/308
R153*20

Order- no.:

4314M20

Application:

Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has to cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 6000g
Protection Mode	IP65
Supply	230/115VAC, 10VA
Output	Relay 250VAC/110VDC, 8A,1500VA/150W, 1xCh, R
Switching Mode	bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppressor	forced synchronisation
Access Time q	<2ms/switch Transition (optiona)
normal	<12ms/switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0...3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C

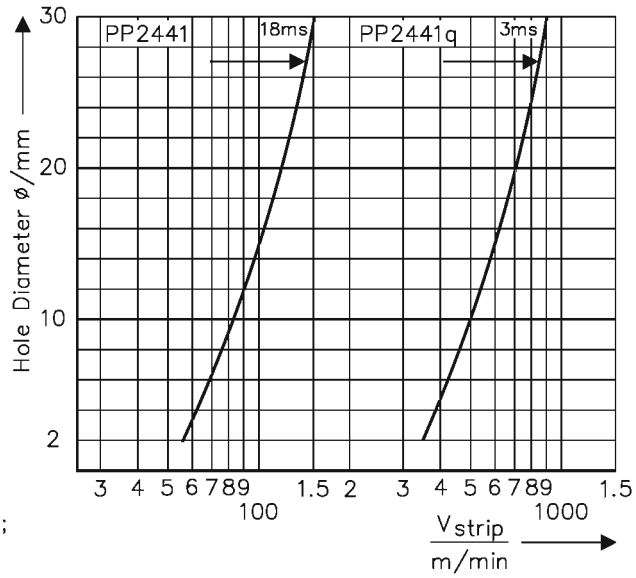
Accessories:

Cooling Water Flange 2xKW153 (then milled wall, y)

Special Design:

Supply Voltage	24VDC, 42...48VAC
Outputs	pnp, e2; npn, e3; Optocoupler, e1; antival. pnp (npn), e4 (e5)

Heat-protected optical system, pl



4314M20 DE
E_ 4314 1 k
(24.05.05 tb)
30.03.07 tb

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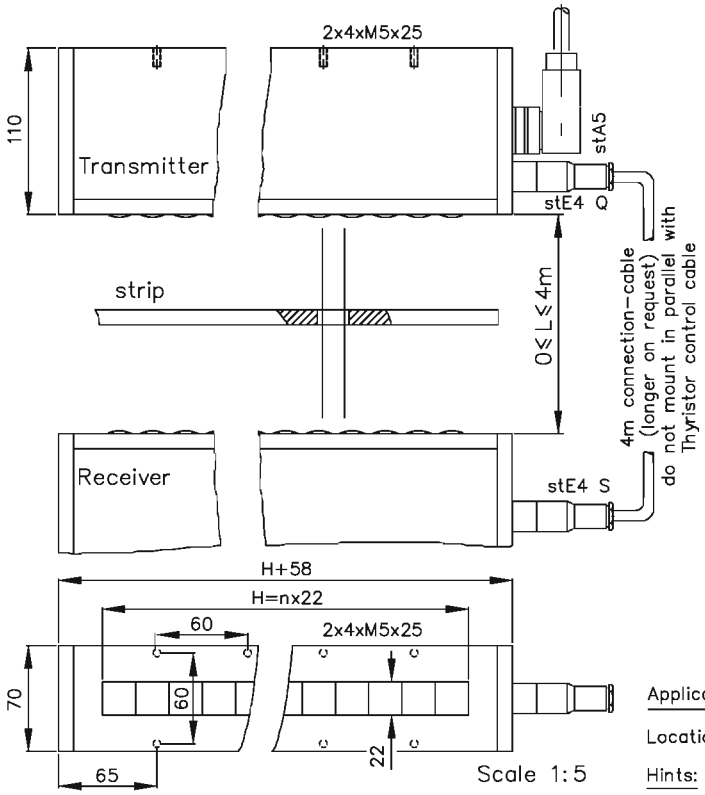
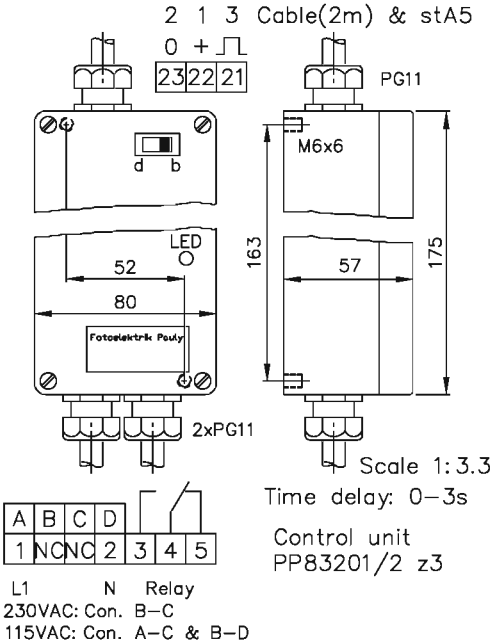
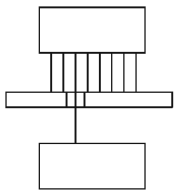
Hole Detector Type PP2441(q)/H/AL

For Detection Of Welded Seams







0 - 4m
ø ≥ 2 mm

Hole Detector

PP2441(q)/H
AL

Order- no.:

4315

Technical Characteristics:

Housing	Al-Cast
Weight	approx. 2x10kg/m
Protection Mode	IP65
Supply	230/115VAC;10VA
Output	Relay 250VAC/110VDC, 8A,1500VA/150W, 1xCh, R
Switching Mode	bright-/darkswitching, selectable
Transmitter Light	GaAs 880nm
Steady Light Resistance	>80kLx
Interference Suppressor	forced synchronisation
Access Time q	<2ms/switch Transition
normal	<12ms/switch Transition
Switching Frequency q	Relay: 10/s; electron.: 300/s (opt.)
normal	Relay: 10/s; electron.: 40/s
Switch Indicator	LED
Time Delay	0...3s switch-on-off-delay, z3
Ambient Temperature	-25...+60°C

Accessories:

Cooling Water Flange on request

Special Design:

Supply Voltage	24VDC, 42...48VAC
Outputs	pnp, e2; npn, e3; Optocoupler, e1; antival. pnp (npn), e4 (e5)

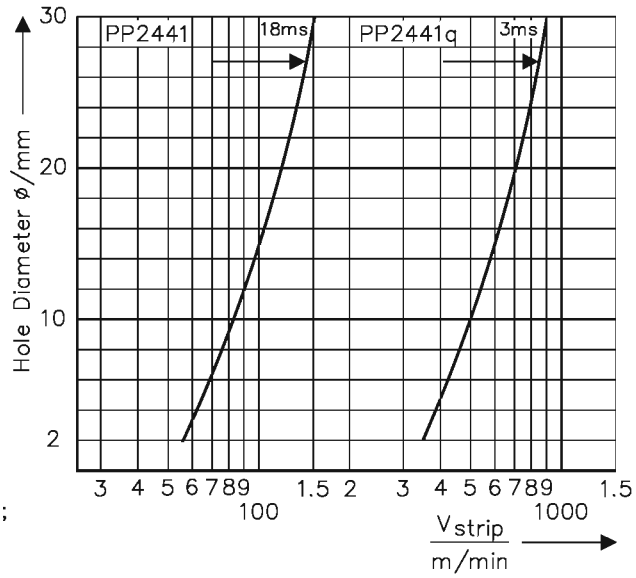
Heat-protected optical system, pl

Application:

Location of hole- marked welded seams

Hints:

Speed of strip and diameter of holes define whether a normal- or q-device will be required (see diagram). In case of strip speeds above 900m/min please contact us for information.
The (non transparent) strip has ta cover the device completely; in case of smaller strips the flanks of the device have to be coverd by means of non transparent material.



4315 DE
E_ 4315 1
(20.12.89 jp) (06.12.04 mj/tb)
(19.06.97 tb) 30.03.07 tb
(21.06.02 tb)
(02.08.02 tb)

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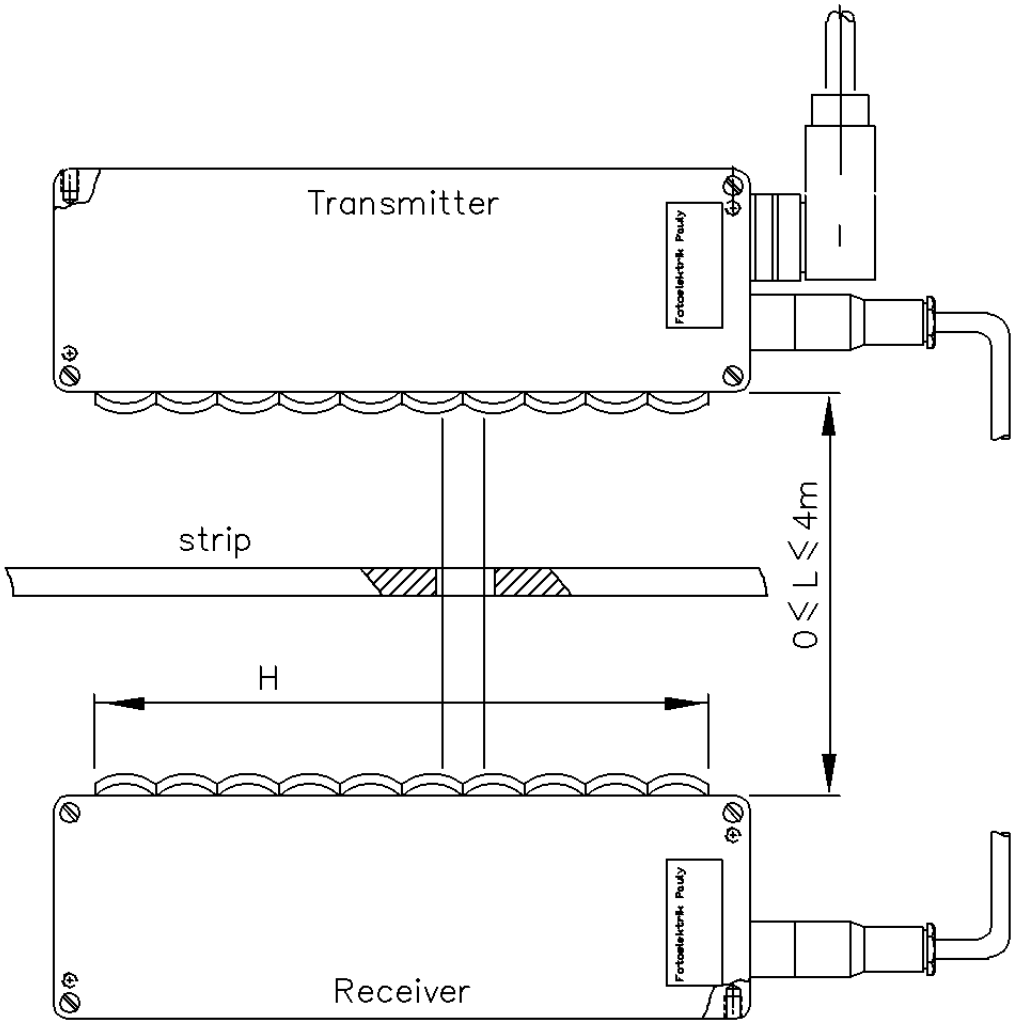
Manual
for
Hole Detectors PP2441...



* E_431x2rev2011-10-21.doc * bis 03 TA/PS * (26.01.04 tb) * (09.01.07 tb) * (19.10.11 gte) * 21.10.11 tb *

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General description

Manufacturer:	Fotoelektrik Pauly GmbH & Co. KG, Germany
Type:	PP2441(q)/…/…

One hole detector comprising (for each WPD):

1 - Transmitter PP2441(q)**S**/…/…
1 - Receiver PP2441(q)**E**/…/…
1 - Control Unit PP83201/2 – with 2m cable, with plug (in case of PP2441(q)/308/R153, the Control Unit is inside the Transmitter)
1 - Cable (4m) – with 2 plugs

Technical Characteristics

Housing		Al-Cast
Weight		see Datasheet
Protection Mode		IP65
Supply Control Device		230/115VAC, 10VA
	optional:	42…48VAC, 24VDC
Output Control Device		Relay 250VAC/8A, 150W/1,500VA, 1xc-o-c
	optional:	pnp, e2; npn, e3; Optocoupler, e1
Transmitter Light		GaAs 880nm, invisible
Steady Light Resistance		>80kLx
Interference Suppressor		Forced Synchronisation
Access Time	“normal”:	Recommended working range: ≥18ms/Switch Transition Limit: ~12ms/Switch Transition
	“q” (optional):	Recommended working range: ≥3ms/Switch Transition Limit: ~1,5ms/Switch Transition
	“qq” (optional):	Recommended working range: ≥1ms/Switch Transition Limit: ~0,5ms/Switch Transition
Switching Frequency		Relay: 10/s; electronic.: 40/s (normal), 300/s (q)
Switch Indicator		LED
Time Prolongation		0-3s switch-on-off-prolongation, z3
Ambient Temperature		-25…60°C

* E_431x2rev2011-10-21.doc * bis 03 TA/PS * (26.01.04 tb) * (09.01.07 tb) * (19.10.11 gte) * 21.10.11 tb *

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Application:

Detection of hole-marked welded seams.

Principle:

The light of the hole detector-emitter source (gallium arsenide diodes in the transmitter) falls through the material strip's hole onto the hole detector receiver-source, as shown on the drawing (front page of this manual). The control unit actuates the output signal (relay or electronically Output).

Selection of types:

1. **Detection of hole-marked welded seams:**
We assume that the hole punching machine does not change its position. The strip with the hole can move to both sides during the run. The operating width is determined by the widest possible strip run.

2. **See drawing no. E_431x75 for strip speed and hole diameter**
to determine the working range.

3. Based on the following conditions: operating width, strip speed and hole diameter **the suitable device can be selected.**

3.1 **Operating width (H):**
The **operating width** is decided by the greatest possible width of the running strip.
(H) is calculated from the operating width increased to multiples of 22 mm: H_{min} = 44 cm; H_{max} = 4928 mm.

3.2 **Working range:**
The required access time and the recommended working range "normal" (without addition) and quick (-q) are calculated from the **hole diameter** and **strip speed**.

3.2 **Housing**
can be selected at will according to the table below but the appropriate operating width H_{max} should not be exceeded.

H_{max} mm	**l** mm	**b** mm	**c** mm	**Aluminium**	**Housing**	**Order no.**
88	125	57	80	die-cast	R26	4311
154	175	57	80	die-cast	R27	4312
220	250	52	80	die-cast	R28	4313
308	360	80	120	die-cast	R153	4314
4928	H+72	70	110	section	AL	4315

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Order example

H_{max} = 220mm, **normal** working range (access time <18ms):
Order No.: 4313
Type: PP2441/220/R28

H_{max} = 308mm, **quick** working range (access time <3ms):
Order No.: 4314**q**
Type: PP2441**q**/308/R153

Assembly:

Mount the transmitter and receiver as shown on the drawing (see front page).

Do not exceed distance (4m) to make sure that the smallest hole diameter (2mm) can be used.

Affix the devices (transmitter and receiver) on the back side with M6 screws.

The operating width “H” can be reduced at will by covering the lenses, if this is required by narrow thick strips (outside light which enters the lenses outside the strip-edge is permissible).

The electric connection is set up as shown on the **wiring diagram of the control unit**.

Connection cable:

Included in the scope of supply are:

One piece 4m connection cable for **transmitter-receiver-link** with 2 plugs (4-pole, metal) – separately packed – and

One piece 2m connection cable for the connection of the **control unit** with the **transmitter** with 1 plug (5-pole, cranked) – assembled on the control unit (in case of PP2441(q)/308/R153, the control unit is inside the Transmitter).

Upon request other lengths up to 20m can be ordered.

Caution: do not lay parallel to thyristor control leads.

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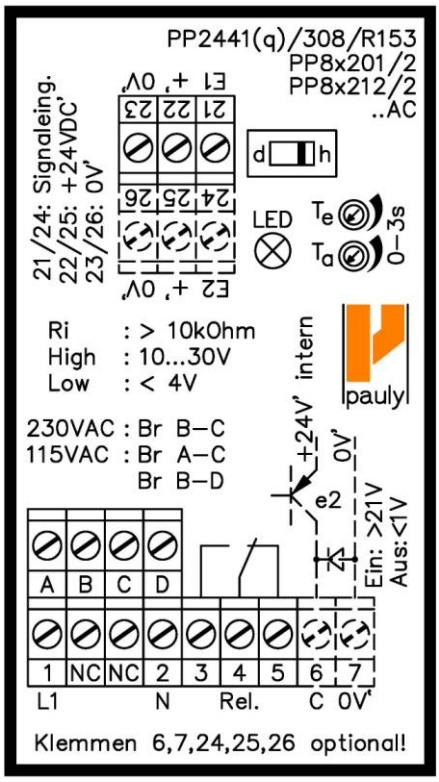
Explanations ´Control Unit PP83210/2´:



"**h** ... **d**" = Slide Switch for bright (h) / dark (d) - change. Standard programme = "h" (= bright switching) !
"**Te**" "**Ta**" = Potentiometer to prolongate the switching pulse of the switching device depending on switch position "**h** ... **d**". **Te**: pulse prolongation for switch position "h...d" = "**d**" **Ta**: pulse prolongation for switch position "h...d" = "**h**"
Note: The drawing of the layout of the components such as switches (h/d), terminals, LED and potentiometer roughly corresponds to the positions on the original printed circuit board.
Power Supply Connection: (AC) Terminal **1** (=L1) , Terminal **2** (=N). For **230VAC** : **Jumper** on **B** & **C**. For **115VAC** : **Jumper** on **A** & **C**, **B** & **D**. If not otherwise agreed: Delivery 230VAC; Otherwise delivery ex works with Jumper corresponding with order. Signaleing. = Signal input LED = LED rot = red Ein: = on Aus: = off Rel. = Relay Klemmen … optional = terminals ... optional

Depending on the construction, the output of the hole detector's switching device is at the relay contact (= terminal 3, 4, 5; floating contact) or in the case of an electronics output with p-n-p transistor switching to 24V DC / "0" V (= terminal 6; terminal 7 = ground).

The slide switch "h ... d" has the following function:
Switch position "h ... d" = "**h**": If the hole detector sees "light" (=hole) the output switching device is connected. That means, the relay is activated and the contacts are changed over (terminal connetion 3 + 4 = closed); the electronics output is connected (terminal connection 6 = approx. 24V DC).

If the slide switch position "h ... d" = "**d**" is selected, the function ot the switching device is merely logical inverted, that means, if the hole detector sees "light" (=hole) the relay contacts 4 + 5 are connected; the electronics output is then "0"V.

Note: If no light (= no hole) is seen, the a.m. switching states are reversed.

Explanation to Te / Ta: (potentiometer to prolongate the switching pulse of the switching device)

Start situation when slide switch "h ...d" = "**h**":

Te: Potentiometer **must be** turned to "0", that means turn clockwise until stop.
Ta: Potentiometer clockwise until stop (= no prolongation). Then turn potentiometer counterclockwise until the right position for the requested prolongation of the switching pulse is reached (e.g. 0-3sec.).

Start situation when slide switch "h ...d" = "**d**":

Ta: Potentiometer **must be** turned to "0", that means turn clockwise until stop.
Te: Potentiometer clockwise until stop (= no prolongation). Then turn potentiometer counterclockwise until the right position for the requested prolongation of the switching pulse is reached (e.g. 0-3sec.).

Corresponding to p/o the "h ... d" – slide switch is adjusted to "**h**" or "**d**" and the potentiometers "**Te**", "**Ta**" are adjusted to minimum or maximum.

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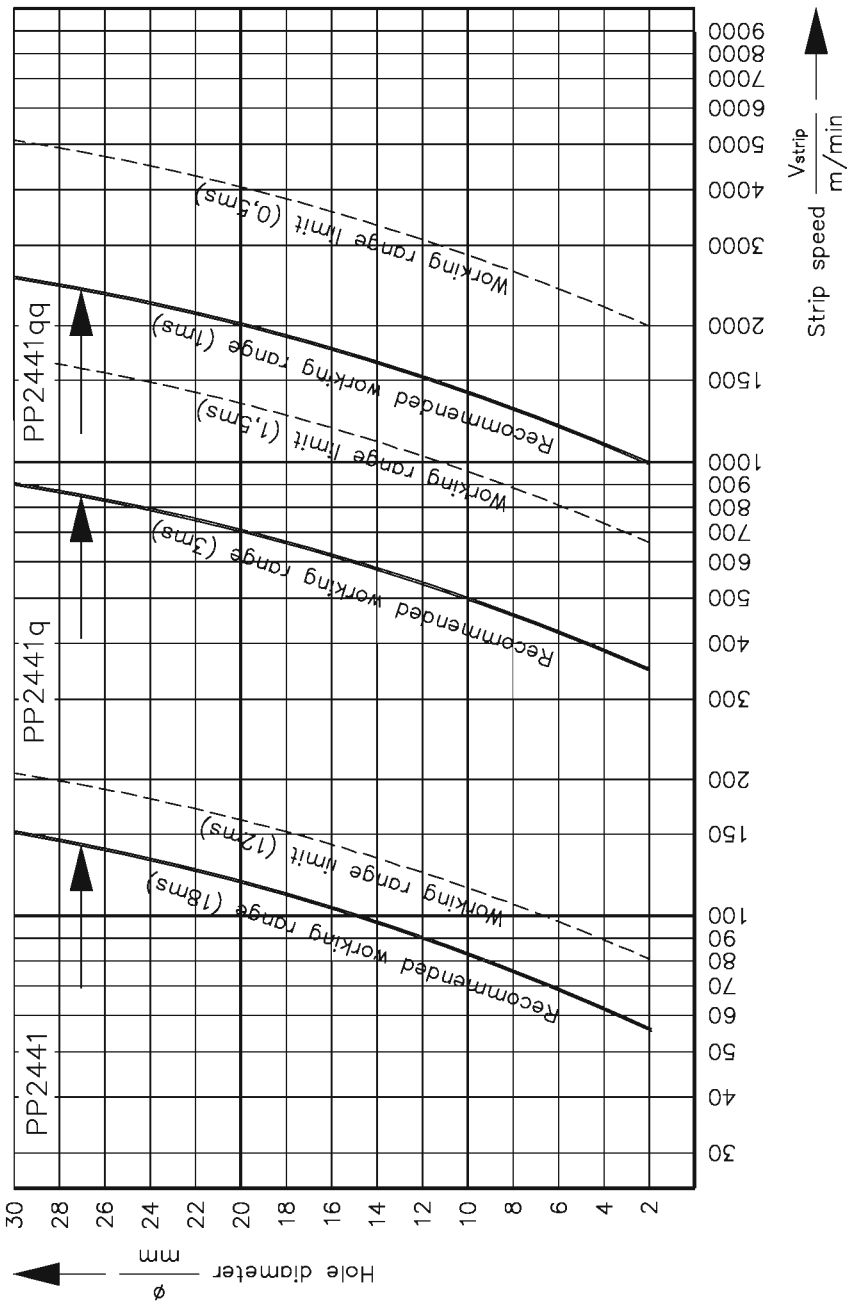
Table for strip speed and hole diameter for Hole Detectors Type PP2441...



In the given hole diameter ø the permissible strip speed is:
Om/min ≤ V_{strip} < V_{max}; V_{max} is shown by the limit curves but must be less than this!

Comment:
To calculate the assumed free sight path: 15mm + hole diameter
Actual free sight path: 22mm + hole diameter

431x PE
E_ 431x 75
02.08.02 tb

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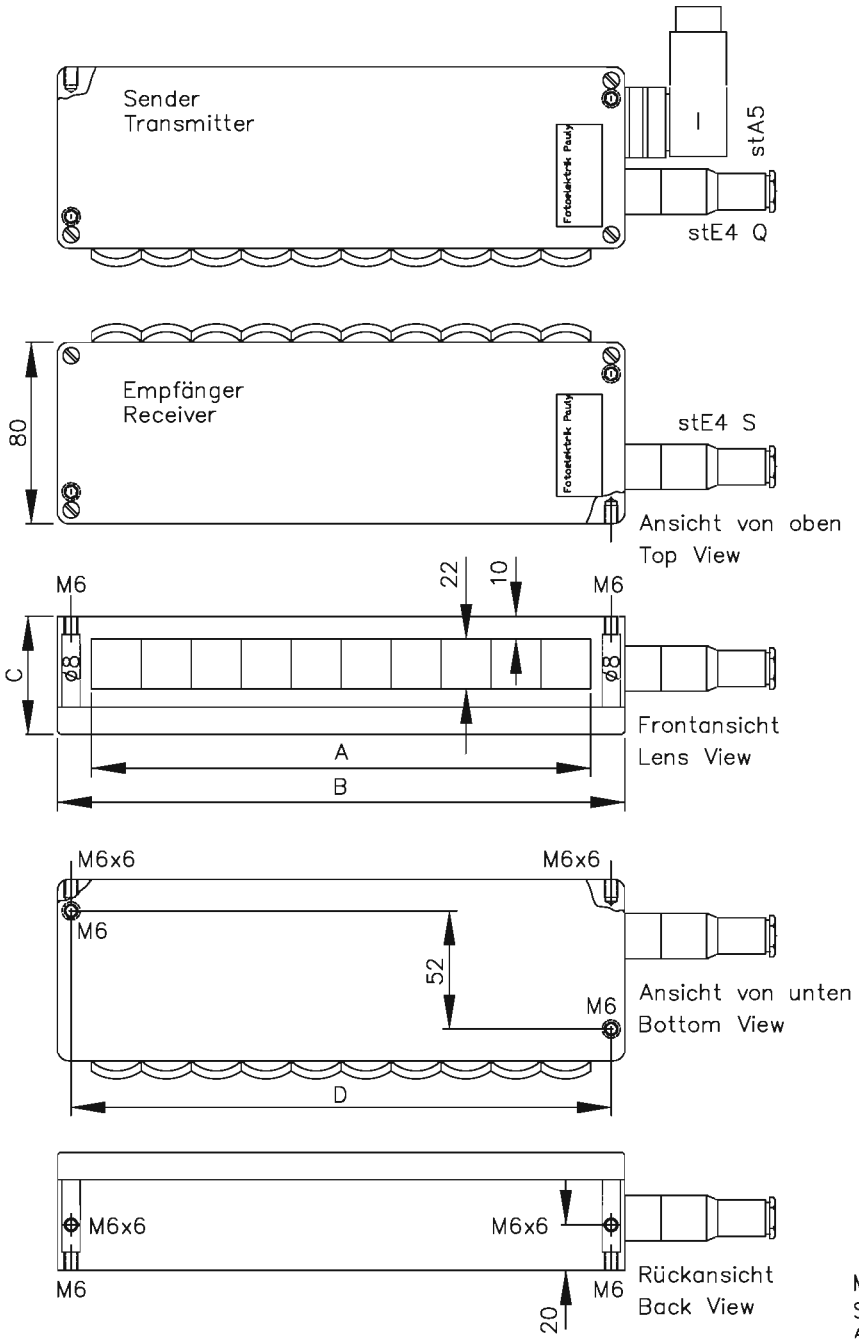
Maßbild für Lochsuchgerät Typ PP2441(q)/88...220

Dimension Sketch for Hole Detector Type PP2441(q)/88...220

Typ Type	Optiken Optics	A	B	C	D
PP2441(q)/88/R26	2x4	88	125	57	113
PP2441(q)/154/R27	2x7	154	175	57	163
PP2441(q)/220/R28	2x10	220	250	52	238



M: 1:3.3
Scale 1:3.3
All dimensions in mm

431x H (01.08.02 tb)
D_ 431x 28 25.02.10 tb
(08.06.97 jp)
(10.08.98 jp)

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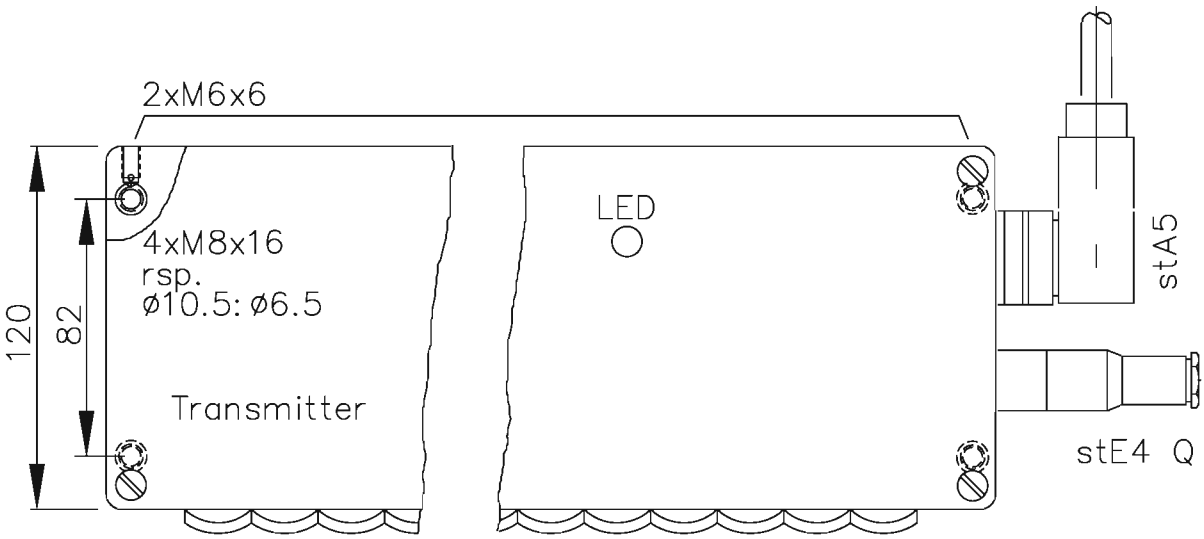
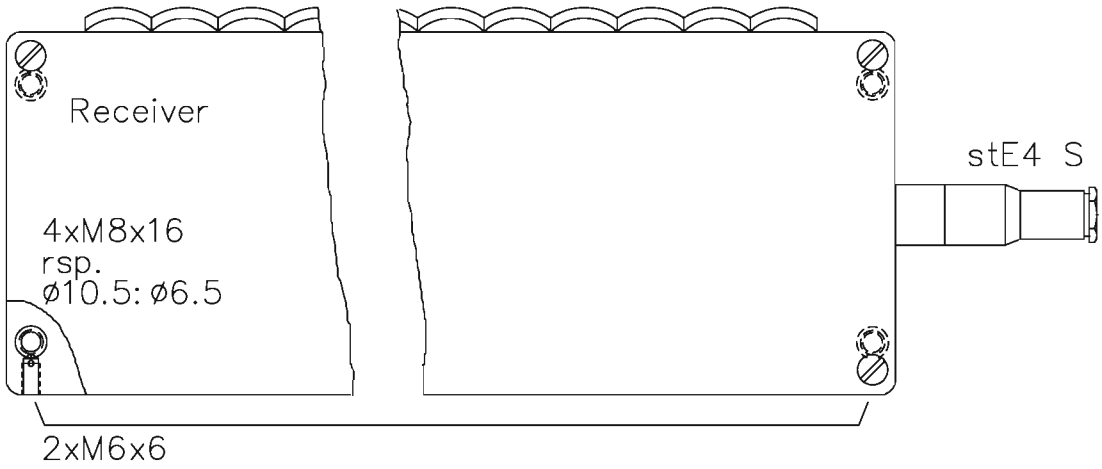
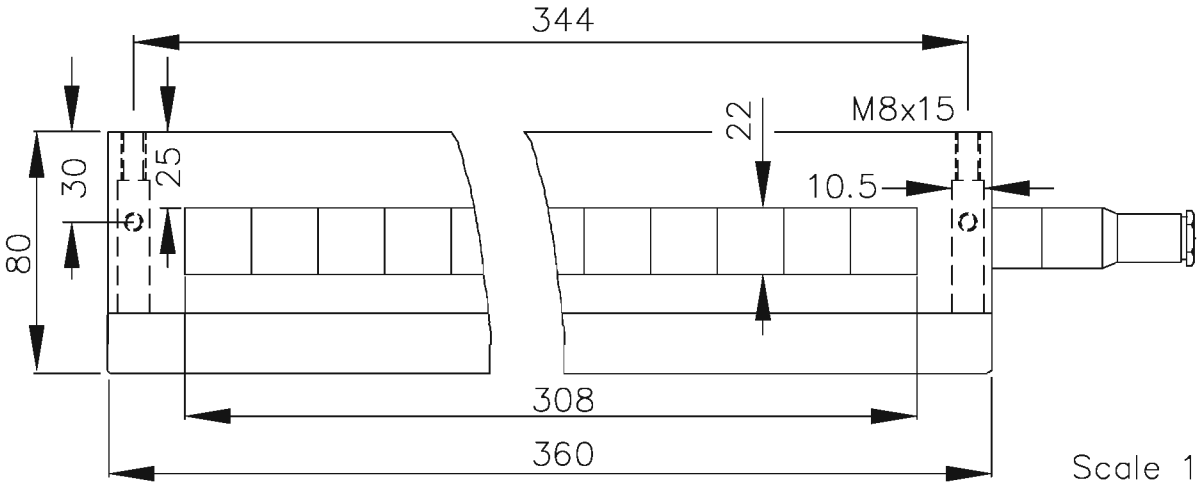
Dimension Sketch for Hole Detector Type PP2441(q)/308/R153







Scale 1: 2.5

4314 K E
E_ 4314 K 1
(20.07.98 tb)
20.06.02 tb

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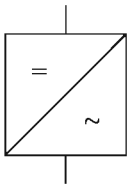
Control Device Type PP83201/2 or similar

Number on this Place / of the number in the device name	0	1	2	3	4	5	6	7	8	9
1st Type of device	Device of distribution	Indication device		Evaluating device					Supply unit	
2nd Power (VA)	3	≤1.5	5	10	16	30	50		120	without transf.
3rd Type of Housing	R11	R26	R27	R152	R153	R57	R58	R61		
4th Function	1 outp. per LB	Logic int. to 1 outp.	without Funct.	measur LB					Prevent. of accid.	special
5th Quantity of light barriers	special	1	2	3	4	5	6	7	8	9

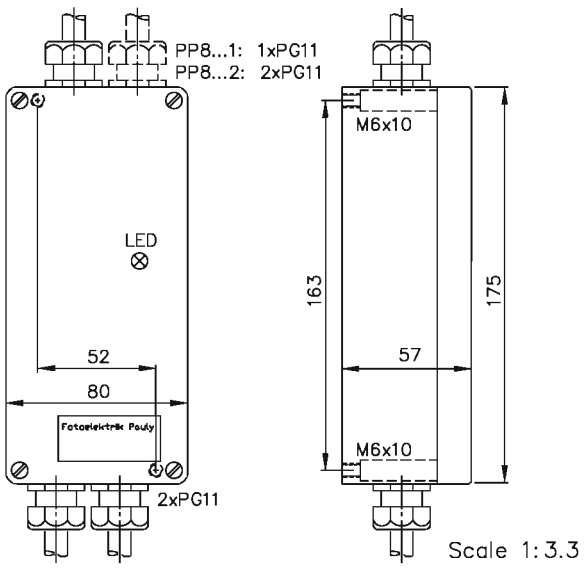


Control Device

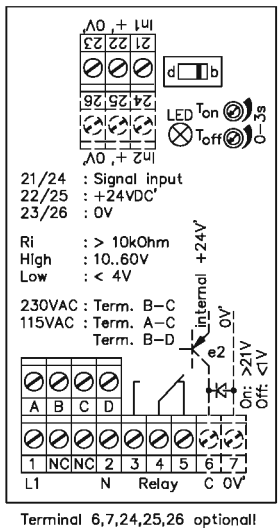
PP 83201/2
PP 83212/2
PP 84201/2
PP 84212/2

Order no.:

2420
2425
2433
2435



Scale 1:3.3



Terminal 6,7,24,25,26 optional!

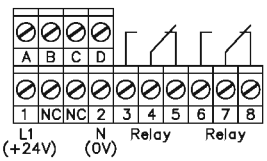
Technical characteristics:

Housing		Al-Cast
Weight		approx. 850g
Protection mode		IP65
Connection		Terminal strip
Supply	PP83..:	230/115VAC/10VA, ±10%
	PP84..:	230/115VAC/16VA, ±10%
DC-Output	PP83..:	19VDC/450mA
	PP84..:	19VDC/650mA
Time delay		0-3s, switching-on-off-delay, separatly adjustable, z3
Signal mode		bright-/darkswitching, selectable
Output		Relay, 250VAC/8A, 150W/ 1500VA, 1xCh, R
Ambient temperatur		-25...+60°C

Special design:

Supply	42-48VAC
	24VDC
Output	pnp 60mA s.c.-prot., e2
	npn 60mA s.c.-prot., e3
	Optocoupler 60V/50mA, e1
	Relay, 250VAC/8A, 150W/ 1500VA, 2xCh, 2U
Time delay	0-1s, z1; 0-10s, z10; 0-20s z20
Dynamic t. del.	0-10s, dyn Z10

Connection diagramm: Relay 2xCh (optional)



Hints:

When using the units in mode "b", the output is active if there is a high-level at the signal-input. By adjusting the potentiometer anticlockwise the time delays will increase. The adjustable intervals are between 0 and approx. 3 sec. In case of using the units in mode "d", Ton will change to Toff!

2420 DE
E_ 2420 1
(04.02.99 tb) (06.12.04 mj/tb)
(04.08.03 gs) (09.01.07 tb)
30.03.07 tb

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Lichtschranken

Fotoelektrik Pauly GmbH & Co. KG, Wahrbrink 6, D-59368 Werne, Germany

Telefon 0 23 89 / 4 02 27-70
Telefax 0 23 89 / 4 02 27-77
info@pauly-lichtschranken.de
www.pauly-lichtschranken.de

Manufacturer's declaration of conformity M1

within the meaning of the EU directive governing machines 89/392 EEC, annex II B

Manufacturer:

Fotoelektrik Pauly GmbH & Co. KG
Wahrbrink 6
59368 Werne
Germany

As manufacturer/distributor we hereby declare that all products hereinafter mentioned are components to be installed in a machine or equipment.[1] These products are not supplied as stand-alone parts and are only sold to qualified operators. These products may only be commissioned by qualified staff who comply with the documentation supplied with the products. In particular, the safety and assembly instructions as well as the instructions for proper use must be observed.

Prior to commissioning the entire machine or plant, the machine manufacturer or plant contractor must ensure conformity of the machine or plant with the EU directive governing machines and any other applicable regulations.

This declaration does not warrant any specific qualities and applies to the following product groups:

Hole Detectors and Accessories:	#4311(q)	: PP2441(q)88/R26
	#4312(q)	: PP2441(q)/154/R27
	#4313(q)	: PP2441(q)/220/R28
	#4314(q)	: PP2441(q)/308/R153
	#4315(q)	: PP2441(q)/H/AL
	#4316(q)	: PP2441(q)/36/G19
	#2420	: PP83201/2

Werne, 01. June 2002

.....
Peter Steinlein (Managing Director).

[1] See also Article 4, paragraph 2 of the EU directive governing machines 89/392 EEC