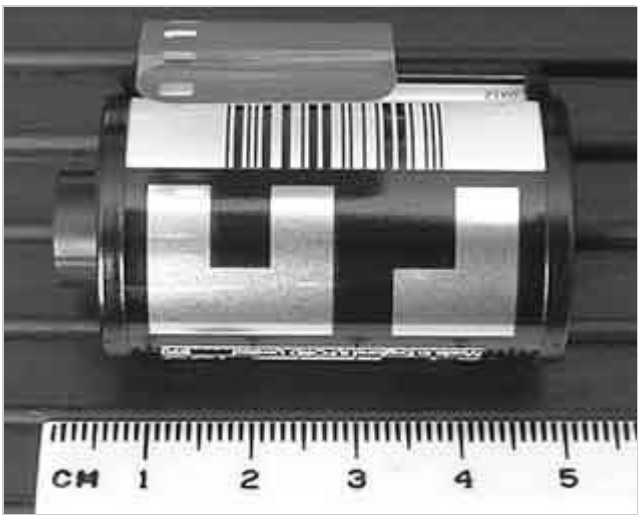
DX encoding

From Wikipedia, the free encyclopedia

DX (Digital indeX) encoding is an ANSI and I3A standard, originally introduced by Kodak in March 1983, for marking 135 and APS photographic film and film cartridges. It has several parts, a latent image DX film edge barcode on the film below the sprocket holes, a code on the cartridge used by automatic cameras, and a barcode on the cartridge read by photo-finishing machines.



135 Film Cartridge with *DX barcode* (top) and *DX CAS* code. The CAS code shows this is (top row) ISO 125 film, (bottom row) 24 exposures, +3/ 1 f-stop exposure tolerance. The DX barcode reads 017563, showing DX number 109-12, 24 exposures.

Contents

DX cartridge barcode

Next to the film exit lip is an Interleaved 2 of 5 barcode and a printed number. The 6 digits represent the I3A assigned DX number (middle 4 digits), the number of exposures (last digit) and a proprietary manufacturer's code (first digit). The DX number identifies the manufacturer, film type, and by inference, the necessary developing process type. This is used by automatic photo-finishing machines to correctly process the exposed film. (Kodak US patent 4965628)

DX film edge barcode

Below the sprockets under each frame of 135 film is the DX film edge barcode. The barcode is invisible until the film has been developed. It is optically imprinted as a latent image during manufacturing. They are used by photo finishers to identify and align each frame for printing. It consists of two parallel linear barcodes, one for a synchronizing clock, and the other encoding film data such as type, manufacturer and frame number.(Kodak US patent 4965628)

DX film edge barcode

DX Camera Auto Sensing

The outside of film cartridges are marked with a DX Camera Auto Sensing (CAS) code readable by many cameras. Cameras can then automatically determine the film speed, number of exposures and exposure tolerance. The first cameras to use the technology are said to be the Konica TC-X SLR and Pentax Super Sport 35 (PC 35AF-M)[1] in 1984.

The DX Camera Auto Sensing code takes the form of a grid of contact points on the side of the metal cartridge surface that are either conductive or non-conductive. Electrical contacts in the camera read the bit pattern. Most cameras read only part of the code; typically, only the film speed is read, and some cameras aimed at the consumer market only read enough bits to tell apart the most common film speeds. For example, 100, 200, 400, and 800 can be detected by reading only S1 and S2 and ground.

Electrical contacts

On 35mm film cartridges there are two rows of six rectangular areas. The two left-most areas (with the spool post on the left) are both common (ground) and are thus always bare metal. The remaining five bits in the top row represent 32 possible film speeds. But only the 24 speeds representing the 1/3 stops from ISO 25/15° to 5000/38° are used. The codes are not in strict binary order.

In the second row, the first three bits represent eight possible film lengths, although in practice only 12, 20, 24 and 36 exposures are encoded. The remaining two bits of the second row give four ranges of exposure tolerance, or latitude.

Most cameras read the film speed only (first row).

Diagramatically (with spool post to the left):

G	S1	S2	S3	S4	S5
G	L1	L2	L3	T1	T2

Where "G" are the two common-ground contacts, "S" is the film speed, "L" the film length, and "T" the exposure tolerance.

Reading DX codes

Reading DX codes [edit]

Speed

ISO speed	1st row DX contacts
25/15°	
32/16°	
40/17°	
50/18°	
64/19°	
80/20°	
100/21°	
125/22°	
160/23°	
200/24°	
250/25°	
320/26°	
400/27°	
500/28°	
640/29°	
800/30°	
1000/31°	
1250/32°	
1600/33°	
2000/34°	
2500/35°	
3200/36°	
4000/37°	
5000/38°	
custom 1	
custom 2	
custom 3	
custom 4	
custom 5	
custom 6	
custom 7	
custom 8	

Film length

Exposures	2nd row DX contacts
other	
12	
20	
24	
36	
48	
60	
72	

Exposure tolerance

Exposure tolerance (in f-stops)	2nd row DX contacts
±⅓	
±1	
+2 −1	
+3 −1	

- DX number

References

1. "History of Innovations". Pentax. Retrieved 21 July 2011. "1984: Pentax introduces its second leaf-shutter sport model, the Super Sport 35 (PC 35AF-M). The new addition offers all of the features of the Sport 35, plus a built-in auto winder, fully automatic loading and automatic film speed setting using the Kodak-pioneered DX coding system. The Super Sport 35 is the world's first non SLR camera to incorporate the DX film sensing system."

External links

- A Java applet for generating and interpreting DX codes (http://www.imageaircraft.portfairy.town/DXsim/)

bardcode side

6	5	4	3	2	1
12	11	10	9	8	7

Template

barcode side
50

barcode side
100

barcode side
200

barcode side
400

barcode side
800

barcode side
1600

barcode side
3200

barcode side
800

barcode side
1600

barcode side
100

barcode side
200

barcode side
400

barcode side
800

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1600

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100

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400

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800

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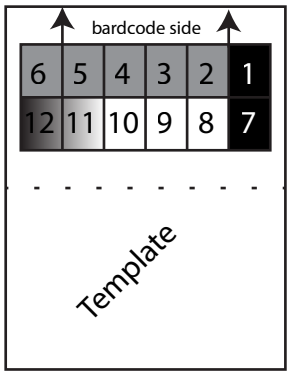
1600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12 11 10 9 8 7
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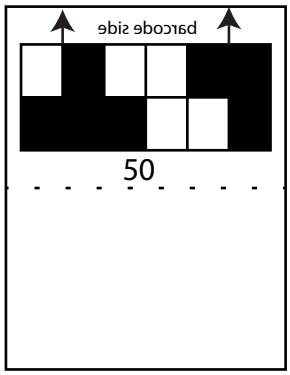
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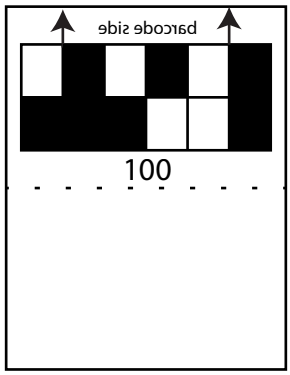
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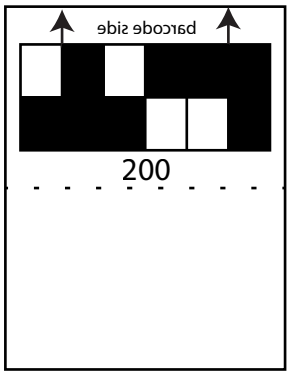
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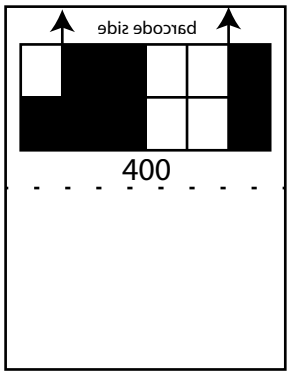
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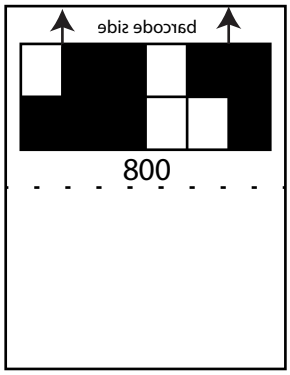
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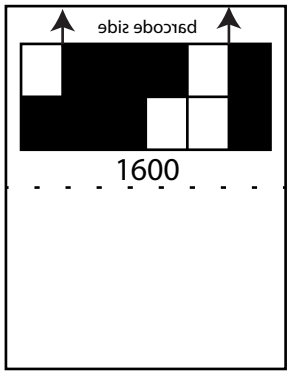
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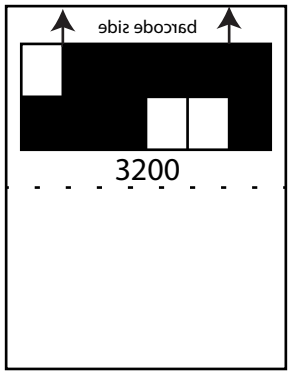
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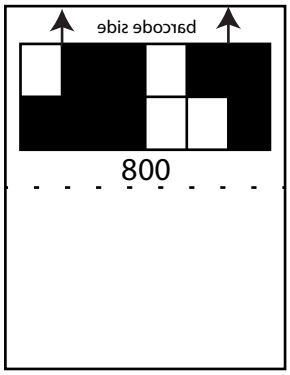
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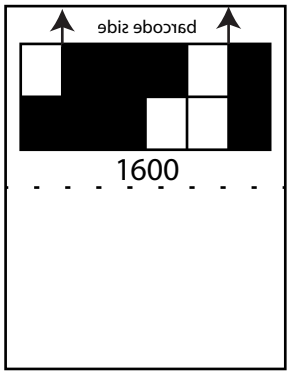
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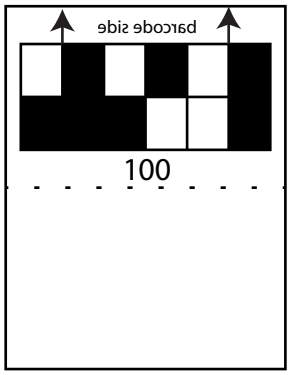
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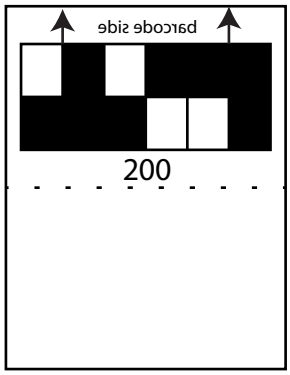
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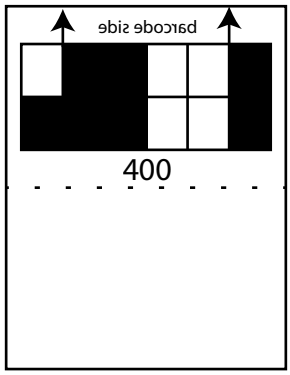
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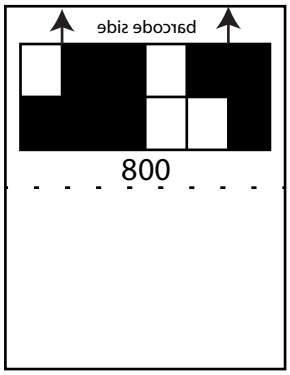
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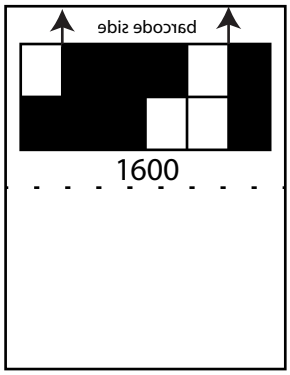
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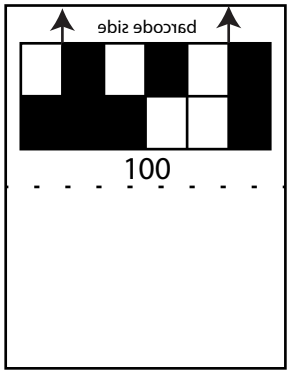
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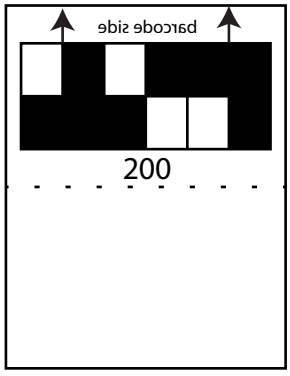
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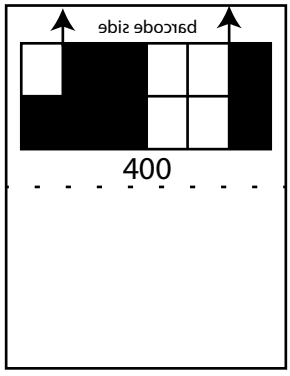
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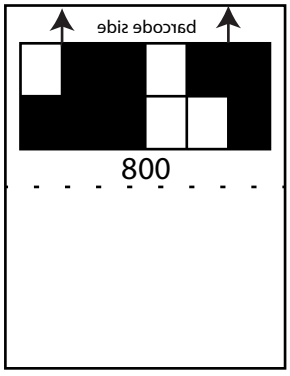
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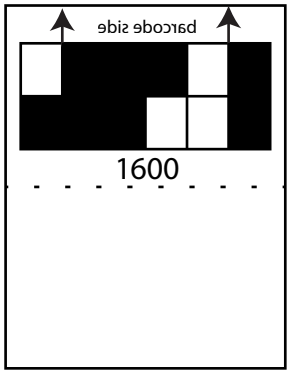
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bardcode side

6	5	4	3	2	1
12	11	10	9	8	7

Template

barcode side

50

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barcode side

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barcode side

1600

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3200

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Make Your Own DIY DX Code Labels!

A problem is only a problem if you can't make a way around it. Luckily, this tipster can get you pushing your ISO to the extreme or make your way around cameras that use DX codes to match your ISO settings!

Ingenuity knows no bounds. And this quick and easy tipster is one example. We spotted this film tipster by Instructables member Hazard and he shows us how to neatly and effectively "fool" your DX code reading cameras with a simple technique.

All you'll need are:

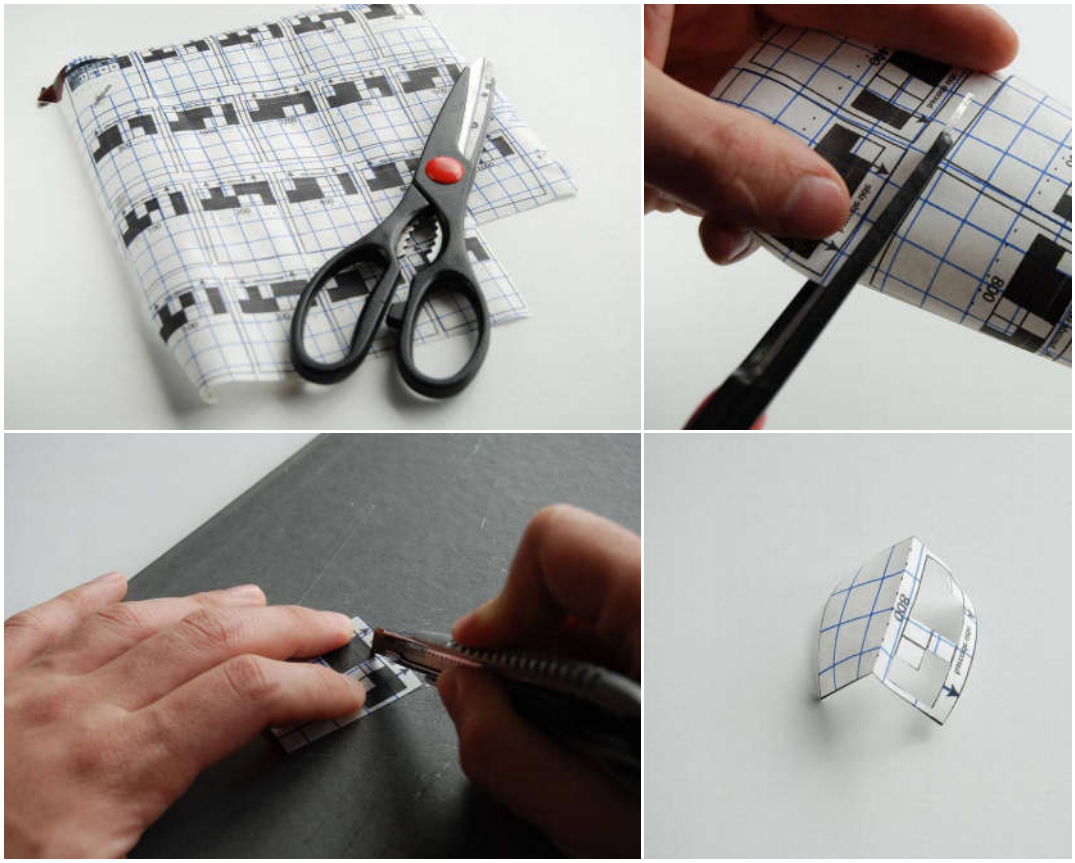
- Aluminum foil
- Clear adhesive sheet
- Tape
- Scissors
- And a cutter
- Printer to print the label layout

Steps:

1. Prepare the materials.

2. Next, print the labels. Hazard provided the templates he used for his tipster.

Download it here and here.



3.Then, cut the labels and remove the black parts with the cutter. These paper strips will serve as your template.

Bend the paper in half to make the next steps easier.


4. Next, cut a piece of foil to make your DX codes.

5. Stick the foil to the exposed parts of the adhesive in the label you cut out. Make sure you match the edge of the foil to make sure your camera reads the “new” DX code.


6. Peel apart the remaining paper in your template and mark the direction of the label and the ISO value and you’re all set.

He also provided a quick video tutorial for the whole lot.

DIY film DX labels

Load it up as you finish and you're all good. Happy shooting!

All information and photos used in this article were sourced from Instructables.

WRITTEN BY CHEEO ON 2014-06-01 IN #GEAR #TIPSTER #VIDEOS #FOIL #DIY #35MM #TIPSTER #DX-CODES

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nar, sven-bauweraerts, stanko, sirio174 & gakurou.

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SIRIO174 · A YEAR AGO

great!

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WRITTEN BY JULIEN MATABUENA ON 2015-04-25 IN #GEAR #TIPSTER

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WRITTEN BY LOMOGRAPHY ON 2015-12-16 IN #GEAR #NEWS

Tipster: DIY X-Pro Redscale

WRITTEN BY RANCLIFFHASENZA ON 2015-09-27 IN #GEAR #TIPSTER

Browsing through the Lomography website, you can find a lot of redscale shots, which are all done on color negative films. I asked myself if it's possible to redscale a slide or chrome film and then cross process it. (And yes, it is.) In this tipster I'm going to teach you how to create the bloodiest homemade redscale film I've ever come across.

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