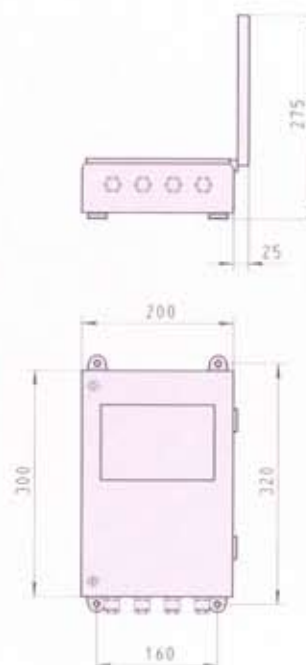


# Electronics unit



Apart from energising the search coil, the electronics unit has a number of other important functions:

- 1) to convert changes in amplitude into suitable pulses
- 2) to eliminate interference and prevent spurious indications
- 3) to give an alarm or stop signal

The electronics unit is described in the section on the operation of the detector. Here the functions that prevent spurious indications are described in detail:

## Setting the sensitivity

The SENSITIVITY function is of particular use in avoiding false indications resulting from the material on the conveyor having relatively high conductivity, or due to mechanical vibrations. The function allows the sensitivity to be adjusted to suit the particular installation.

## Level indicator for easier adjustment

A level indicator to make sensitivity adjustment easier is a very useful feature, not least where there are problems with interference. The indicator is in the form of a row of light-emitting diodes.

## Setting the maximum speed

The MAX SPEED setting is used to damp rapid interference. The setting is adjusted for the highest conveyor speed that occurs, but must not be set so low that the signal from metal objects on the conveyor belt is filtered out.

## Filter for spurious indications

Built-in filters prevent spurious indications due to interference from the mains.

## Electronics unit – general data

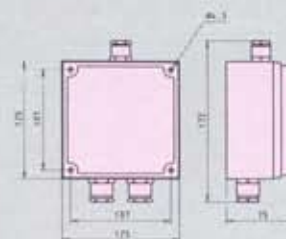
Balancing	Automatic
Operation monitoring	Automatic with fault alarm
Level indicator	LED indication with 12 steps
Hold function	Selectable reset: automatic/manual
Supply voltage	90–130 V/185–265 V
Power consumption	10 VA
Sensitivity	Maximum, approx 1.5 % of equivalent diameter of search coil
Transport velocity of objects	Max. 4 times coil inner width per second
	Min. 1/4 of coil inner width per second
<b>Contact data of indication relay</b>	
Max. voltage	250 V AC/DC
Max. current	30 A for 200 ms, 8 A continuous
Breaking capacity, AC	8 A at 250 V, $\cos \phi > 0.4$
Breaking capacity, DC	0.3 A at 127 V, 0.2 A at 240 V
Contact resistance	0.2 ohm at 0.1 A/24 V/50 Hz (see also IEC 255-0-20)
Duration of alarm signal	> 0.15 s
<b>Environmental data</b>	
Permitted ambient temperature	–25 to +55 °C
Degree of protection	IP 65 to IEC 144 (dust-tight, hose-proof)
	S54 to Swedish standard SEN 2121

# Terminal box

## Environmental data

Ambient temperature  
Degree of protection

-40 to +55 °C  
IP 65 to IEC 144 (dust-tight, hose-proof)  
S54 to Swedish standard SEN 2121



# Search coils

## Choice of coil

The choice of coil or coils depends on the required sensitivity, the size of the conveyor belt, the type of installation chosen and so on. The diagram shows the sensitivity of a standard coil with the object (steel ball) passing through the coil. The sensitivity is defined as the smallest steel ball

diameter that can be indicated. It is clear from Fig. 2 that there are advantages in choosing as small a coil as possible. This maximises the sensitivity and minimises the metal-free zones.

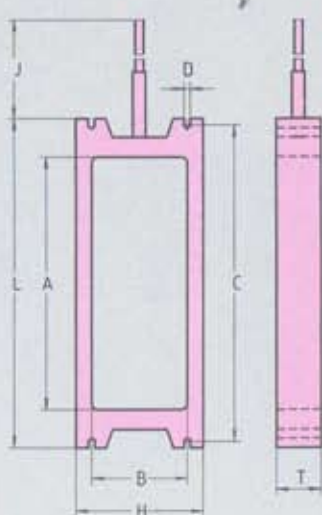
## Environmental data

Ambient temperature  
Degree of protection

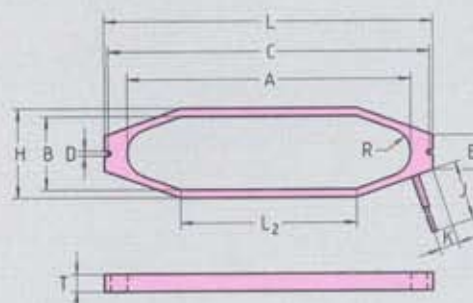
-40 to +55 °C  
IP 65 to IEC 144 (dust-tight, hose-proof)  
S54 to Swedish standard SEN 2121

## Dimension drawings

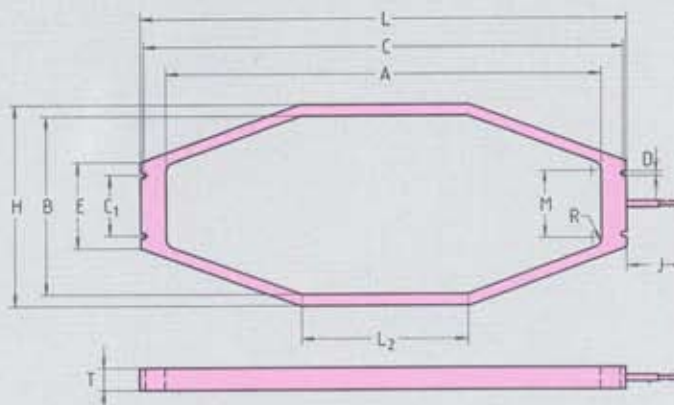
coil a)



coil b)



coil c)



## Dimension table showing sensitivity

Coil	A×B	C	C <sub>1</sub>	D	E	H	J	K	L	L <sub>2</sub>	M	R	T	D <sub>eq</sub>	Smallest detectable steel ball
a)	400×150	500	–	10	–	200	1000	–	520	–	–	–	60	400	5
b)	610×218	715	–	15	80	265	1000	45	740	280	–	40	65	500	6
b)	888×228	1005	–	15	108	278	1000	60	1028	550	–	75	55	700	7
b)	1090×310	1200	–	15	122	360	1000	60	1220	560	–	84	55	900	8
c)	1365×558	1505	190	15	270	628	1000	–	1525	520	210	30	70	1250	12

Measurements in mm. ABB reserves the right to change dimensions without previous notice.

## Ordering guide

The ordering instructions below should be followed for fast, reliable delivery. Check that the correct ordering number has been given. See the ordering example below.

### Ordering numbers

Description	Dimensions, mm	Ordering No.	Weight, kg
Electronics unit QSDM 104 with 10 m cable		5699 675-AA	4.5
Terminal box QSDM 103 A		YL 331 006-A	0.6
Spare circuit board QSDM 104 X		YL 331 001-DL	0.7
Manual, Swedish		5699 678-1	
Manual, English		5699 678-2	
Manual, German		5699 678-3	
Search coils (length A × height B)	400×150	YL 331 016-A	4.8
	610×218	YL 331 011-A	6.0
	888×228	YL 331 012-A	6.3
	1 090×310	YL 331 013-A	8.5
	1 365×558	YL 331 015-A	25

All items listed in this ordering table are normally stocked. Search coils with other dimensions will be quoted for on request.

### Ordering example

The example below is of a metal detector with two coils for dual-coil mounting, alt. 2 on page 4.

Qty.		
1	Electronics unit QSDM 104	5699 675-AA
1	Terminal box	YL 331 006-A
2	Search coils	YL 331 013-A
1	Manual	5699 678-2