



Configuring a Double Sheet Detection System

Typically need to know the following information from the customer:

1. What type of metal(s) are they working with?
Ferrous or Non Ferrous, Aluminum, Magnesium, Zinc, Tin, Stainless Steel, etc.
2. What is the thickness of a single sheet or part?
3. Do they run different thicknesses for different products and do they change over frequently?
4. Where in the manufacturing process do they want to measure?
Pass thru while part on a conveyor, at Robot pickup/de-stacking point, feeding off of a roll/coil, part located in a fixture, on a magnetic conveyor or belt, etc.
5. Any concerns with touching the surface of the part?
Non-marring/scuffing surface, etc.

System consists of the following items:

1. **Control** – There is a wide variety of controls to choose from depending upon specific capabilities or features needed.
2. **Probe(s) – Single probe** systems use only 1 probe and typically contact or come very close to the part. Many times the part is stationary with respect to the probe during the detection. **Dual probe** systems use 2 probes and the part must pass between the two probes. The part does not need to stop for the detection to take place.
3. **Bracket(s)** – Provide an easy means to assist the customer in mounting the probes.
4. **Cable(s)** – Connect the control to the probe(s) and the control to power and I/O. Each probe will have its own cable. Most cables have required specifications and connectors and should be ordered with the system. These are typically available in a variety of lengths denoted by –XX in this document. Some general (power and I/O) cables can be supplied by the customer – typically ones with open lead connections.

How to use the following tables:

The following pages have categories of the most common application configurations of our controls. These are divided as follows.



1. **Dual Probe/Non-Contact** for all Metal Applications.
2. **Single Probe/Contact** for Thin Gauge, Ferrous Applications.
3. **Single Probe/Contact** for Medium to Thick, Ferrous Applications.

The table for each control grouping has listed across the top the most common controls that fall into that category. The table then denotes some of the major feature differences between the different control models. This will help you determine what control best suits your customer's needs. The corresponding probe types and required cables are also listed.


















Below the table for each control group is a table of the most common compatible probes. This table grouping has listed across the top the probe model. The table then denotes the various information and specifics for the different probes. The available brackets are also listed. Note that there are many more probes available that have been developed for specific purposes, but the ones listed are the most common and will apply to the majority of the applications.

This information should steer you in the right direction for determining what components a customer will need for a double sheet detection system. As always, if you are unsure or just want to verify your line of reasoning, don't hesitate to call us! That's what we're here for. Additionally, we have a variety of other controls that provide special detection capabilities and solve unique problems that wouldn't fall under the "double sheet detection" category. If it involves metal sensing, we may have a solution. Please contact us for these types of applications and we will be happy to assist you.








Controls - Dual Probe/Non-Contact for All Metal Applications

Control Model:	DS150	DS152	DS1500	DS1510	DS1520	DS1522
						
Metal Types	All	All	All	All	All	All
Probes	P15, P70, P1000	P15, P70, P1000	P15, P70, P1000	P15, P70, P1000	P15, P70, P1000	P15, P70, P1000
Power Requirements	120-240 VAC, 300mA	24VDC, 150mA	100-240 VAC, 500mA	100-240 VAC, 300mA	100-240 VAC, 300mA	100-240 VAC, 300mA
LED Display	Double, No Double	Double, No Double	Over, Nominal, Under, Nothing	Over, Nominal, Under, Nothing	Over, Nominal, Under, Nothing	Over, Nominal, Under, Nothing
Character Display	—	—	2 Digit	2 Digit	2 Digit	4 Digit
Logic Inputs (PNP or NPN)	Reset	Reset	Reset, Cal, Aux	Reset, Cal, Aux	Reset, Cal, Aux	Reset, Cal, Aux
Relay Outputs (NPN) Outputs	Over	Over	Over, Under	Over, Under	Over, Under	Over, Under
Adjust Relay Delay	.25, .6 sec	.5 sec	.1, .5, 1 sec	.1, .5, 1 sec	0 - .99 sec	0 - .99 sec
Cal Memory	1	1	2	2	2 or 10 w/SM10	64
Auto Cal Trigger	—	—	—	6 sec – 25 min	6 sec – 25 min	6 sec – 25 min
Auto Cal Delay	—	—	—	0 – 9.9 sec	0 – 9.9 sec	0 – 9.9 sec
Tracking Nominal	—	—	—	Yes	Yes	Yes
Threshold Adjust	—	—	—	—	1 – 99%	1 – 99%
Cable - Probe	CBL101-XX	CBL101-XX	CBL101-XX	CBL101-XX	CBL101-XX	CBL101-XX
Cable - Control Power & I/O	User Provide	User Provide	User Provide	User Provide	User Provide	User Provide

Probes - Dual Probe/Non-Contact for All Metal Applications

Probe Model:	P15T18S	P15T30S	P70T18S	P70T30S	P1000BC
					
Metal Types – Best For	Non Ferrous	Non Ferrous	Ferrous	Ferrous	All
Probe Size	18mm	30mm	18mm	30mm	(50 x 50 x 7)mm
Barrel Type	Threaded	Threaded	Threaded	Threaded	Block
Barrel Material	303 SS	303 SS	303 SS	303 SS	Cast AL
Min. Thickness	.05mm, .002"	.05mm, .002"	.05mm, .002"	.05mm, .002"	.51mm, .020"
Max. Thickness	1.0mm, .040"	1.0mm, .040"	1.0mm, .040"	1.0mm, .040"	6.3mm, .25"
Max. Separation Dist.	75mm, 3.0"	75mm, 3.0"	75mm, 3.0"	75mm, 3.0"	75mm, 3.0"
Available Brackets	BR18SR	BR30SR	BR18SR	BR30SR	Threaded Holes in Housing Provide for User Capable Mounting
Stainless, L-Shape					
	BR18PS	BR30PS	BR18PS	BR30PS	
Plastic, Straight					
	BR18PA	BR30PA	BR18PA	BR30PA	
Plastic, Adjustable					


Controls - Single Probe/Contact for Thin Gauge, Ferrous Applications

Control Model:	DS60A	DS61	DS62	DS63	DS64	DS100	DS101
							
Metal Types	Ferrous	Ferrous	Ferrous	Ferrous	Ferrous	Ferrous	Ferrous
Probes	PM4, PM10, PM15	PM4, PM10, PM15	PM4, PM10, PM15	PM4, PM10, PM15	PM4, PM10, PM15	PM4, PM10, PM15	PM4, PM10, PM15
Enclosure Type	18mm AL Housing	18mm AL Housing	18mm AL Housing	18mm AL Housing	18mm AL Housing	Panel Mount Housing	IP65 Poly Enclosure
Power Requirements	24VDC, 150mA	24VDC, 150mA	24VDC, 150mA	12-24VDC, 150mA	12-24VDC, 150mA	100-240 VAC, 300mA	100-240 VAC, 300mA
LED Display	Power, Multi	Power, Multi	Power, Multi	Power, Multi	Power, Multi	Double, No Double	Double, No Double
Logic Inputs	—	—	—	Cal	Cal	Reset, Cal	Reset, Cal
Input Type	—	—	—	PNP	NPN	NPN or PNP	NPN or PNP
Relay Outputs	—	—	—	—	—	Over	Over
Logic Outputs	Double	Single, No Double	Single, No Double	Single, No Double	Single, No Double	Nothing	Nothing
Output Type	PNP & NPN	PNP	NPN	PNP	NPN	NPN or PNP	NPN or PNP
Adjust. Relay Delay	—	—	—	—	—	2ms, 12ms	2ms, 12ms
Cal Memory	1	1	1	1	1	1	1
Cable - Probe	CBL110-2	CBL110-2	CBL110-2	CBL110-2	CBL110-2	CBL100-XX	CBL100-XX
Cable - Control Power & I/O	CBL104-XX	CBL104-XX	CBL104-XX	CBL113-XX	CBL113-XX	User Provide	User Provide





Probes - Contact Type for Thin Gauge, Ferrous Applications

Probe Model:	PM4	PM10	PM15
			
Metal Types	Ferrous	Ferrous	Ferrous
Probe Diameter	18mm	30mm	36mm
Probe Type	Permanent Magnet	Permanent Magnet	Permanent Magnet
Barrel Type	1mm Thread	1.5mm Thread	1.5mm Thread
Barrel Material	303 SS	303 SS	303 SS
Min. Detect Thickness	.04mm, .0015"	.10mm, .004"	.15mm, .006"
Max. Detect Thickness	.40mm, .015"	1.0mm, .040"	1.5mm, .060"
Available Brackets	BR18SR	BR30SR	BR36SR
Stainless, L-Shape			
	BR18PS	BR30PS	BR36PS
Plastic, Straight			
	BR18PA	BR30PA	BR36AL
Plastic, Adjustable			
Aluminum, Spring Loaded			

Controls - Single Probe/Contact for Medium to Thick, Ferrous Applications

Control Model:	DS210 
Metal Types	Ferrous
Thickness Range	.26mm – 6.04mm, (.01" - .24")
Probes	PE36M, PE42M, PE54M, PE75M
Enclosure Type	NEMA 4X Poly Enclosure
Power Requirements	24VDC, 2A
LED Display	Status, Metal, Double, Single, Under
Logic Inputs	Cal, Reset
Input Type	PNP or NPN
Logic Outputs	Metal, Double, Under
Output Type	PNP or NPN
Calibration Memory – Stored in Probe *Need cable to access	8
Cable - Probe	CBL109-XX
Cable - Control Power & I/O	CBL108-XX
*Cable - Control to PLC/PC Optional for RS232 and Memory Selection	CBL210-RS-XX

Probes - Contact Type for Medium to Thick, Ferrous Applications

Probe Model:	PE36M 	PE42M 	PE54M 	PE75M 
Metal Types	Ferrous	Ferrous	Ferrous	Ferrous
Probe Diameter	36mm	42mm	54mm	75mm
Probe Type	Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic
Barrel Type	1.5mm Thread	1.5mm Thread	.75mm Thread	1.5mm Thread
Barrel Material	303 SS	303 SS	303 SS	303 SS
Min. Detect Thickness	.26mm, .01"	.50mm, .02"	.75mm, .03"	1.00mm, .04"
Max. Detect Thickness	2.3mm, .09"	3.8mm, .14"	4.6mm, .18"	6.0mm, .24"
Available Brackets	BR36AL 	BR42AL 	BR54AL 	BR75AL 
Aluminum, Spring Loaded	BR36SR 			
Stainless, L-Shape				