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UK CA

WTO
HS Commodity Code:
85308000 - Electrical, signalling, safety

SCB2_u24vDC

(For CR type use optional filter kit in DC supply)

Signal Controller PCB assembly for: Pedestrian Crossings & Single Carriageway Roads.

Comprises:

A PCB with pre-programmed software & safety positive break interlocked relay outputs.

The PCB Has 4 Modes of Software Operation plus

<u>All outputs = RED function.</u>

These programmes (modes) are contained within the programme PIC controller (The long black rectular item).

The operation is determined by Inserting or removal of links on the 4 header pins, maked J1 to J4 (Marked above)

Mode:	Description:	J1 to J4 Header Pins:	
F	Force Modes - *Determined status of inputs B, D & E*	*Operates with any arrangement of header pins*	
1	Cross Roads or 2 Way Vehicle Operation of a Single Track Road. Red / Amber / Green Signals	*J1 Blank J2 Blank*	*J3 Blank J4 Blank*
2	Cross Roads or 2 Way Vehicle Operation of a Single Track Road. Red / Green Signals	*J1 Link J2 Blank*	*J3 Blank J4 Blank*
3	Pedestrian Crossing (Non Highway) Red / Amber / Green Signals & Red Man / Green Man.	*J1 Blank J2 Link*	*J3 Blank J4 Blank*
4	Pedestrian Crossing (Non Highway) Red Green Signals & Red Man / Green Man.	*J1 Link J2 Link*	*J3 Blank J4 Blank*

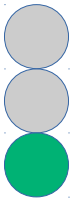
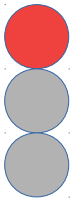
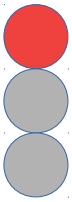
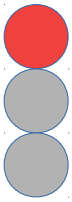
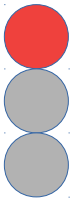
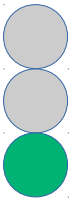
IMPORTANT

Reset Button – Resets all cycles back to the first step. *(To the left of the input H in pic below)*

✳ **Inputs – Do not connect any voltage to Inputs A to H - Volt free connections only**

SCB2 – F – Force Modes of Operation
All Direction or Pedestrian Signals to Red

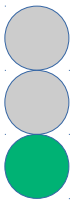
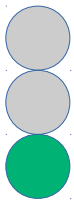
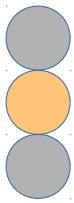
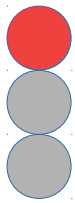
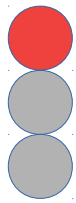
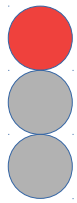
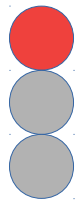
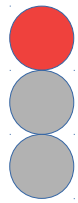
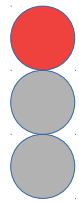
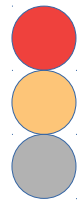
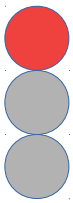
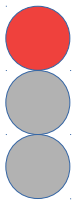
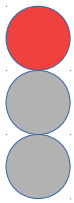
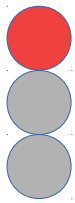
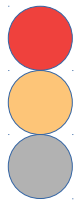
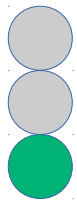
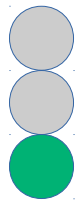
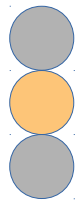
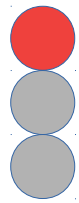
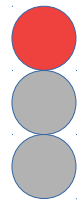
J1 to J4 Header Pin Link:			
J1	J2	J3	J4
Any Arrangement			

Direction 1 Force Green		STOP - All Red Force		Direction 2 Force Green	
Input B = Open Circuit (No Link)		Input E = Open Circuit (No Link)		Input D = Open Circuit (No Link)	
D1	D2	D1	D2	D1	D2
 G	 R	 R	 R	 R	 G
PCB Inds 1, 5, 7 & 8		PCB Inds 5, 6 7 & 8 On		PCB Inds 3, 6,7 & 8 On	
PCB Inds 9 &10 alternate continuously. LED 4 = Step Initiated					

SCB2 - Mode 1 - Operation
Red / Amber / Green Signal Control System for Cross Roads or Two Way Vehicle Operation of a Single Track Road.

J1 to J4 Header Pin Link:			
J1	J2	J3	J4
OPEN	OPEN	OPEN	OPEN

Operating Sequence Steps:

1	2	3	4	5	6	7	8	9	10	Return to Step 1
D1 On	D2 Demand	D1 Stops	D1 Clears	D1 Clears	D2 On	D1 Demand	D2 Stops	D2 Clears	D2 Clears	
 G	 G	 A	 R	 R	 R	 R	 R	 R	 R + A	***Direction 1 Indication***
 R	 R	 R	 R	 R + A	 G	 G	 A	 R	 R	***Direction 2 Indication***
1, 7	1, 7	1, 2, 8	8	4, 8	3, 8	3, 6, 7	3, 4, 7	7	2,7	***PCB Indication***
PCB Inds 9 &10 alternate continuously. LED 4 = Step Initiated										

SCB2 - Mode 2 - Operation

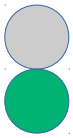
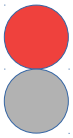
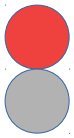
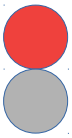
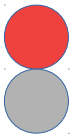
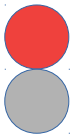
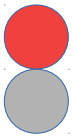
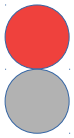
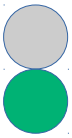
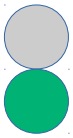
Red / Green Signal Control System for Cross Roads or Two Way Vehicle Operation of a Single Track Road.

J1 to J4 Header PinLink:

J1	J2	J3	J4
LINK	OPEN	OPEN	OPEN

Operating Sequence Steps:

Return to Step 1

1	2	3	4	5	6	7	
D1	D2 Demand	D1 Stops	D1 Clearing	D2	D1 Demand	D2 Stops	
 G	 G	 R	 R	 R	 R	 R	***Direction 1 Indication***
 R	 R	 R	 R	 G	 G	 R	***Direction 2 Indication***
1	1, 7	8	7	3, 8	3, 7	7	*PCB Indication*
PCB Inds 9 &10 alternate continuously. LED 4 = Step Initiated							

SCB2 - Mode 3 - Operation

Red / Amber / Green Signal & Red Man / Green Man Control System for a Pedestrian Crossing (Non Highway)

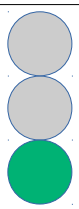
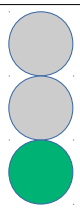
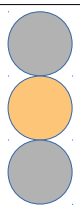
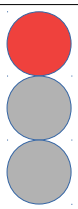
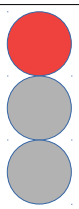
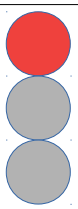
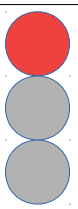
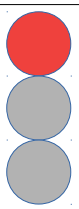
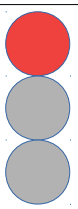
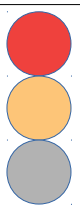
J1 to J4 Header PinLink:

J1	J2	J3	J4
OPEN	LINK	OPEN	OPEN

Operating Sequence Steps:

Important – Input D = Normally NO contact with NC contact for pedestrian demand

Return to Step 1

1	2	3	4	5	6	7	8	9	10	
D1 On	D2 Demand	D1 Stops	D1 Clears	D1 Clears	Pedstr On	D1 Demand	Pedstr Clears	D2 Clears	D2 Clears	
 G	 G	 A	 R	 R	 R	 R	 R	 R	 R + A	***Direction 1 Indication***
										***Direction 2 Indication***
1, 6, 8	1, 7	1`, 2, 6, 8	6, 8	4, 8	3, 6 , 8	3, 8	3, 6 flash 8	6, 8	2, 6, 8	***PCB Indication***
PCB Inds 9 &10 alternate continuously. LED 4 = Step Initiated										

SCB2 - Mode 4 - Operation

Red / Green Signal & Red Man / Green Man Control System for a Pedestrian Crossing (Non Highway)

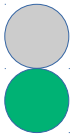
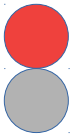
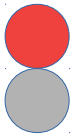
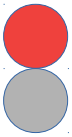
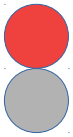
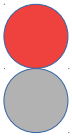
J1 to J4 Header PinLink:

J1	J2	J3	J4
LINK	LINK	OPEN	OPEN

Operating Sequence Steps:

Important – Input D = Normally NO contact with NC contact for pedestrian demand.

Return to Step 1

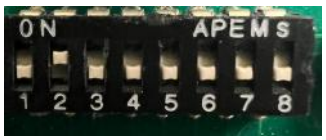
1	2	3	4	5	6	7	
D1	Pedestrian Demand	D1 Stops	D1 Clearing	Pedestrian Green	D1 Demand	Pedestrian Stops	
 **G**	 **G**	 **R**	 **R**	 **R**	 **R**	 **R**	***Direction 1 Indication***
							***Direction 2 Indication***
1	1, 6, 8	8	8	3, 8	3, flash 8	8	*PCB Indication*
PCB Inds 9 &10 alternate continuously. LED 4 = Step Initiated							

Time Control DIP Switch Settings

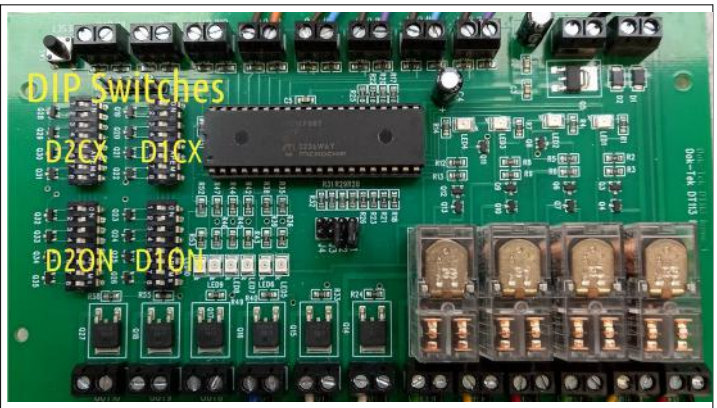
D1CX = D1 Clearance
D1ON = D1 Min On Period

D2CX = D2 Clearance
D2ON = D Min On Period

All time periods start from a base of 8 secs.
The DIP switches add to these time periods.



Seconds Value when on



Sw 1	Sw 2	Sw 3	Sw 4	Sw 5	Sw 6	Sw 7	Sw 8
1s	2s	4s	8s	16s	32s	64s	128s

To Adjust the time periods move the DIP Switch Levers.
Off = Move to Numbers (Down in picture)
On = Move Away from Numbers (Up in Picture)
The ON time periods are added onto the base of 8 secs.
In the Picture the time is 10 seconds – Base of 8 secs + 2 secs set by DIP switch 2

Operation Control

Set by the status of the inputs:

Inputs – Do not connect any voltage to Inputs A to H - **Volt free connections only!**

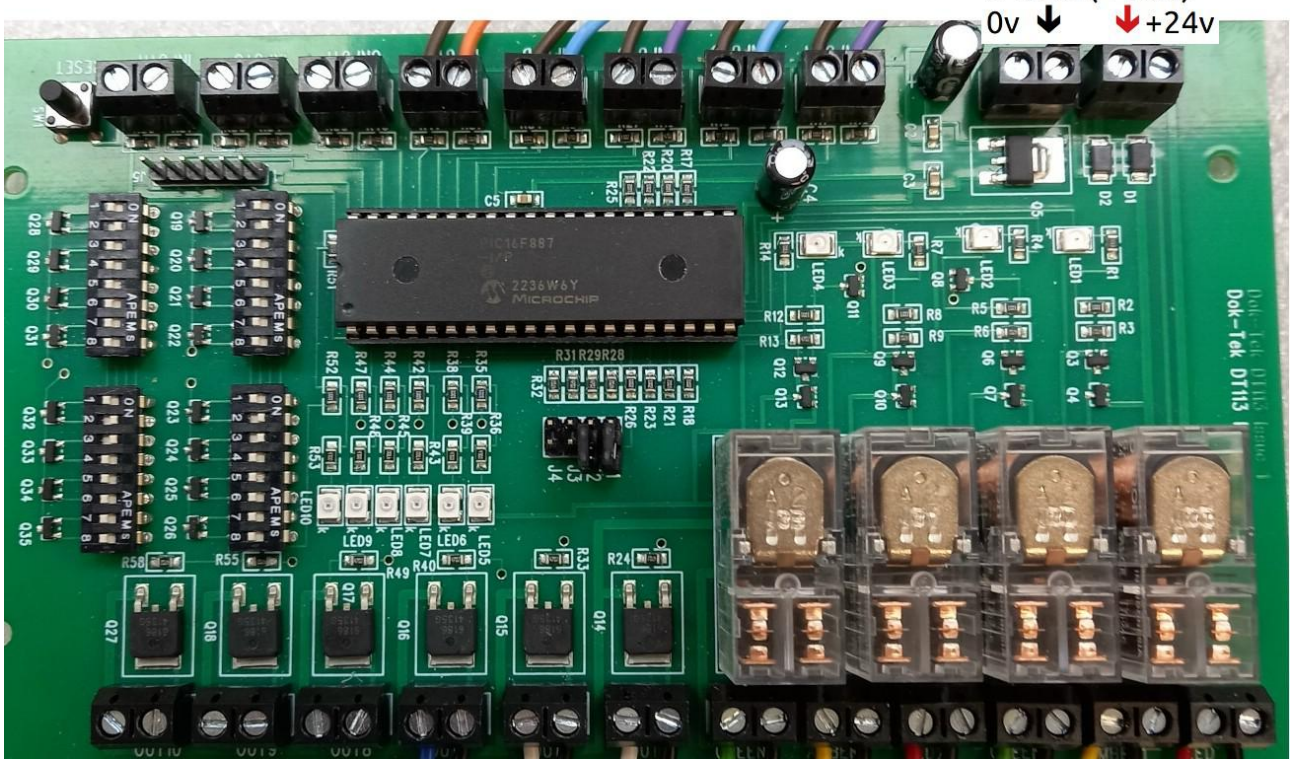
Closed Contact can be replaced with a link for permanent settings

Note : *D1 = Direction 1*
D2 = Direction 2

Input	Description	Input NO Open Contact	Input N/C Closed Contact or LINK
A	D1 Traffic Detect	Normal Sequence Runs	Holds Sequence
B	D1 Force	D1 Force Green / D 2 Force Red	Normal Sequence Runs
C	D2 Traffic Detect	Normal Sequence Runs	Holds Sequence
D	D2 Force	D2 Force Green / D1 Force Red	Normal Sequence Runs
	Important – Input D = Normally NO contact with NC contact for pedestrian demand.		
E	Emergency Stop	Force D1 & D2 to RED	Normal Sequence Runs
F	Not Used		
H	Commisioning	Hold / Step Though	Normal Sequence Runs

Power Supply Input

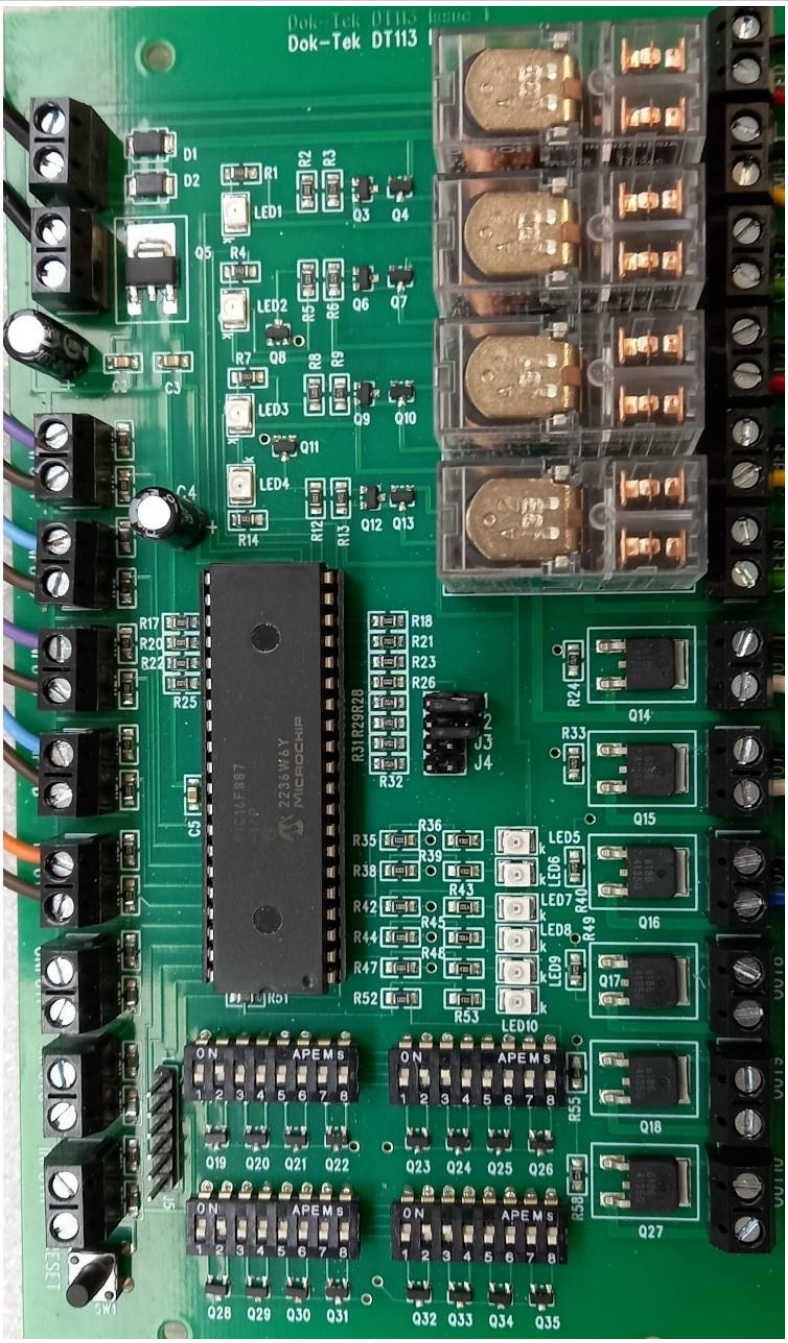
Power Input
Fully Regulated
24vDC (± 1.0v)
0v ↓ ↓ +24v



Output Connections:

Outputs Red 1, Green 1, Red 2 & Green 2 are controlled by positive break relay contacts & are rated @ 5A 24v DC

All Other Outputs are rated at 4A 24v DC



0v(-)	**Red 1**	Direction D1 Traffic Signals
+24v		
0v(-)	**Amber 1**	
+24v		
0v(-)	**Green 1**	
+24v		
0v(-)	**Red 2**	Direction D2 Traffic Signals 0r Crossing Icons
+24v		
0v(-)	**Amber 2**	
+24v		
0v(-)	**Green 2**	
+24v		
0v(-)	**Out 5**	Direction D1 Force Including STOP
+24v		
0v(-)	**Out 6**	Direction D2 Force Including STOP
+24v		
0v(-)	**Out 7**	Direction D1 Demand
+24v		
0v(-)	**Out 8**	Direction D2 Demand
+24v		
0v(-)	**Out 9**	Continuous Flash Phase 1
+24v		
0v(-)	**Out 10**	Continuous Flash Phase 2
+24v		

SCB2 - Commissioning

Set Up	Set your desired operating mode by use of the shorting links on the header pins.
C1	Do not connect inputs or outputs.
C2	Insert shorting links on inputs B, D and E
C3	Set the DIP switch 1 on for each of the 4 groups. (all others off) This will give a basic time of 9 secs on each red green step.
C4	Insert link N/C into input H
C5	Connect and turn on 24v DC power.
C6	Check that step 1 lights are correct.
C7	Step though your selected sequence, by momentarily breaking N/C input H Check that you are displaying the correct sequence.
C8	If sequence is OK. Remove connection / link on input H.
C9	Timer sequence should now run.
C10	**If using sensors or pushbuttons.** **These can now be simulated**
C11	For Direction D1 Input A - A momentary N/C (dab a link) will bring the sequence to D1 Green. Breaking the contact will allow the sequence to resume.

C12	For Direction D2 Input C - A momentary N/C (dab a link) will bring the sequence to D2 Green. Breaking the contact will allow the sequence to resume.
C13	**Check force functions**
C14	Remove shorting link from input B. Ensure D1 goes to Green & D2 is Red.
C15	Remove shorting link from input B. Ensure D1 goes to Green & D2 is Red.
C16	Replace shorting link in input B.
C17	Remove shorting link from input D. Ensure D1 is Red & D2 goes to Green.
C19	Replace shorting link in input D.
C20	Remove shorting link from input E - Ensure both Directions are Red.
C21	Replace shorting link in input E
C22	Turn off & Connect Outputs.
C23	Set Dip Switches (4 groups) To set desired times for each function.
C24	Turn On and System will Run.

Place of manufacture:	Dok-Tek Systems Ltd. D7D Avondale Works, Woodland Way, Bristol. England. UK (GB). BS15 1PA Tel: +44 01179145510 email: main.doktek@gmail.com
Dimensions	175mm x 100mm x max 35mm.
Construction:	The chemically etched pcb has surface mount components to provide the circuitry functions

UK Legislation:
T1 Singles, T2 Twins & L1 Twins products comply with the following legislation:

Electromagnetic Compatibility Regulations 2016		
	RFI Conducted Transmissions: Voltage type: U**vDC = Vulnerable. No Protecion. Voltage type: CR**vDC = Protected (≥ 5KHz).	RFI Radiated Transmissions: All types = Vulnerable. No protection

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (UKSI 2012 # 3032)	
RoHS	Restriction Of Hazardous Substances - Not Applicable – Does not contain: Lead (Pb). Mercury (Hg). Cadmium (Cd). Hexavalent chromium (Cr6+). Polybrominated biphenyls (PBB). Butyl benzyl phthalate (BBP). Polybrominated diphenyl ether (PBDE). Bis(2-ethylhexyl) phthalate (DEHP). Dibutyl phthalate (DBP). Diisobutyl phthalate (DIBP)

The Waste Electrical and Electronic Equipment Regulations 2013 (UKSI 2013 # 3113)			
			Category 9: Monitoring & control equipment Registered WEEE producer under Valpak Ltd membership RM10296. Seperate, recover & recycle.

The Packaging (Essential Requirements) Regulations 2015 (SI 2015/1640)		
		Product Packaging meets BS EN 13432:2000 & is home compostable.

	Important. Supply Voltage: PELV / SELV extra low voltage only. Over Voltage = LED failure - Use only regulated power supplies	Voltage limits: 24vDC (± 1.5v)
Comment: *Low Voltage Directive 2014/35 - Electrical Equipment (Safety) Regulations 2016* *Does not apply – Equipment meets requirements of IEC 60038 – Extra low voltage.*		

Note: Signal Lamp Colours to be used with machinery or safety critical installations (EN60204-1).	
Red = Stop / Emergency; dangerous condition . *Yellow = Warning or abnormal condition.* *Green = Proceed or Normal condtion.*	*Blue = Forcing action required* *White = Neutral or other use.*

Temperature limits:	Installation = +5°C to +30°C / In service = -15°C to +40°C
Service Life:	Shade = +15 Years / Sunlight = +10 Years (UV deterioration).

IEC 60529, EN 60 529.	IP	PCB = IP00 Further proction is requied

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