Aurora Peak, Present Consumer Unit Connections.

1 Oven, Cooker, and Socket, (B40), 1 SubC.

2 Reception Sockets, (B32), 1 SubC.

3 House Sockets, (B32), 1 SubC.

4 Kitchen Sockets, (B32), 1 SubC.

5 (1) Kitchen A/V Sockets, Under Entrance Store, Sideboard Lights, and Front and Back Doors Spotlights,
(2) Front Garden Power Socket,
(3) Fountain Pump {X10: 4}, and Lights {X10-5}, and
(4) Front Garden Spotlights {X10: 6}, (B16), 4 SubCs.

X10 Address: C
1 Doors
2 Garage
3 Terraces
4 Fountain
5 Colours
6 Spotlights
7 House
8 Lawns
9 Utility
10 BBQ
11 Floodlights
12 Water

6 (1) Washing Machine Socket,
(2) Extractor Utility Fan, (B16), 2 SubCs.

7 Water Heater, (B16), 1 SubC.

8 Drainage Tank Pump, (B16), 1 SubC.

9 Alarm, (B6), 1 SubC.

10 Kitchen Lights, (B6), 1 SubC.

11 Smoke Alarm, (B6), 1 SubC.

12 Utility and Study Lights, (B6), 1 SubC.

13 Upstairs RHS Bedrooms, and Bathroom Lights, (B6), 1 SubC.

14 Upstairs LHS Bedrooms, and Loft Lights, (B6), 1 SubC.

15 Reception Lights, (B6), 1 SubC.

16 (1) Veranda, and
(2) Landing Lights, (B6), 2 SubCs.

17 (1) House Lights {X10: 7},
(2) Lawn Lights {X10: 8}, and
(3) Utility Lights {X10: 9}, (B6), 3 SubCs.

18 (1) Gate Doors Panel,
(2) Garage Door Panel,
(3) Garage Sockets,
(4) Garage Lights,
(5) Garage IR Spotlight,
(6) Garage Outside Lights {X10: 2},
(7) Terraces Lights {X10: 3},
(8) Front Gardens Water Feature {X10: 12},
(9) Front Lawn Lights {X10: 8},
(10) Front Fence Floodlights {X10: 11},
(11) Water Fall/Feature Sockets {X10: 12},
(12) Back Gardens Power Sockets,
(13) BBQ Lights {X10: 10}, and
(14) Back Fence Floodlights {X10: 11}, (B16), 13 SubCs.

Phase to 38 Sub-Circuits

18 MCBs — RCD — One 63Amp-30mA RCD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Home Fuse Box (CU) with one MK 63Amp-30mA RCD

25mm² X 3m Meter Tails

Meter & Mains

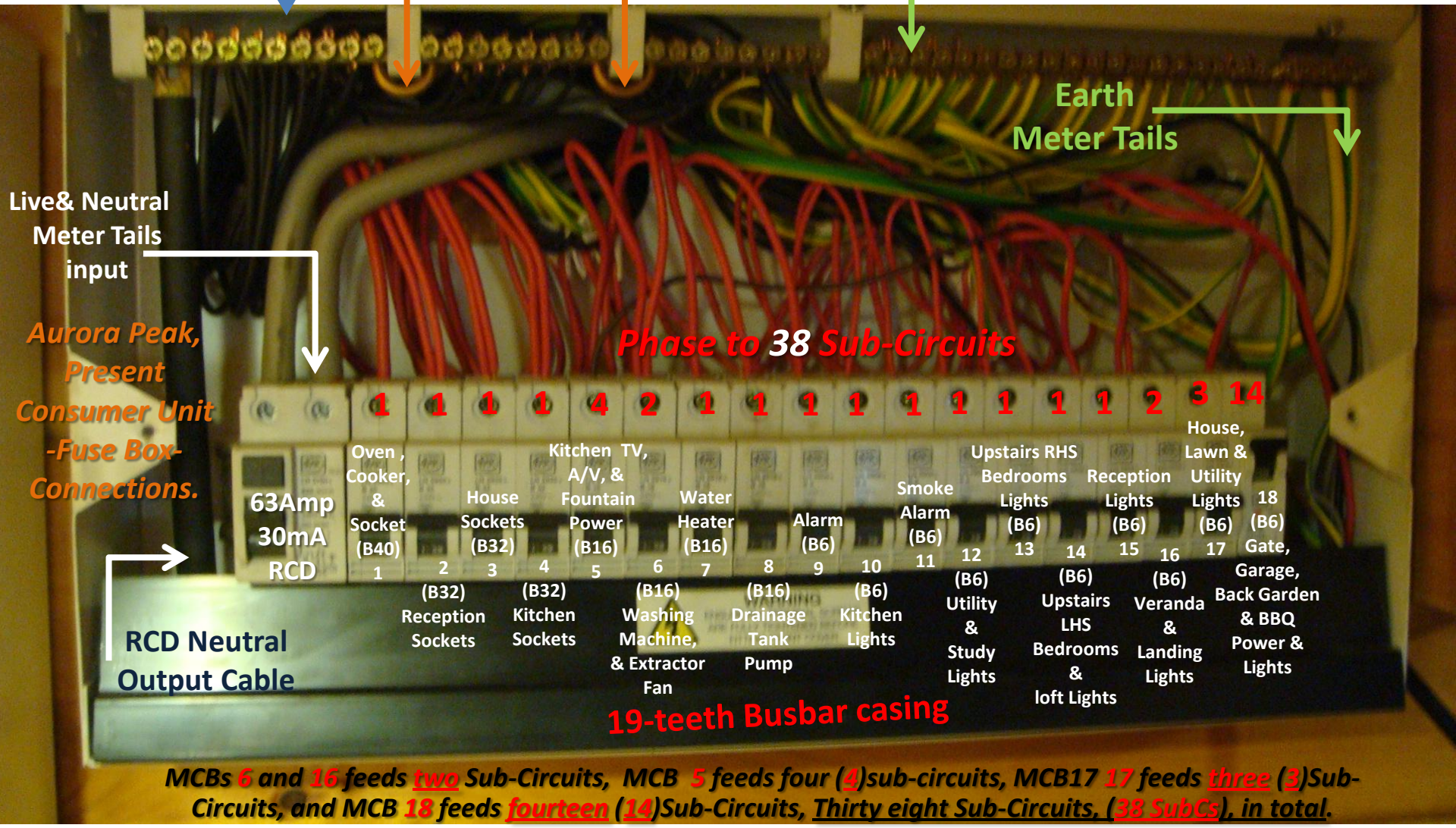
20–way MK Sentry Insulated Consumer Unit, (W:485, H:280, & D:111mm) (9532 PS) populated with:- One 63Amp-30mA RCD, & 18 Type-B MCBs. One 40Amp, three 32Amp, five 16Amp, and Nine 6Amp; total 18 MCBs, no spare-way. All the 18 MCBs are protected by single RCD.

Note:
1. 13 MCBs feed single SubC:- (1, 2, 3, 4, 7, 8 ,9, 10, 11, 12, 13, 14, and 15),
2. 2 MCBs feeds two SubCs- (6 and 16),
3. 1 MCB feeds three SubCs:- (17),
4. 1 MCB feed s four SubCs:- (5), and
5. 1 MCB feeds fourteen SubCs:- (18).

Thirty eight (38) sub-circuits in total.

Note:
Each of the three sockets sub-circuits (2, 3, and 4), has two feeding cables forming a ring feeding a single sub- circuit.

Key:
SubC: Phase Sub Circuit
MCB: Miniature Circuit Breakers
RCD: Residual Current Device — RCD
RCBO: Residual Circuit Breaker with Overload protection
1 2 3 … 18: The 18 MCBs of the present CU.

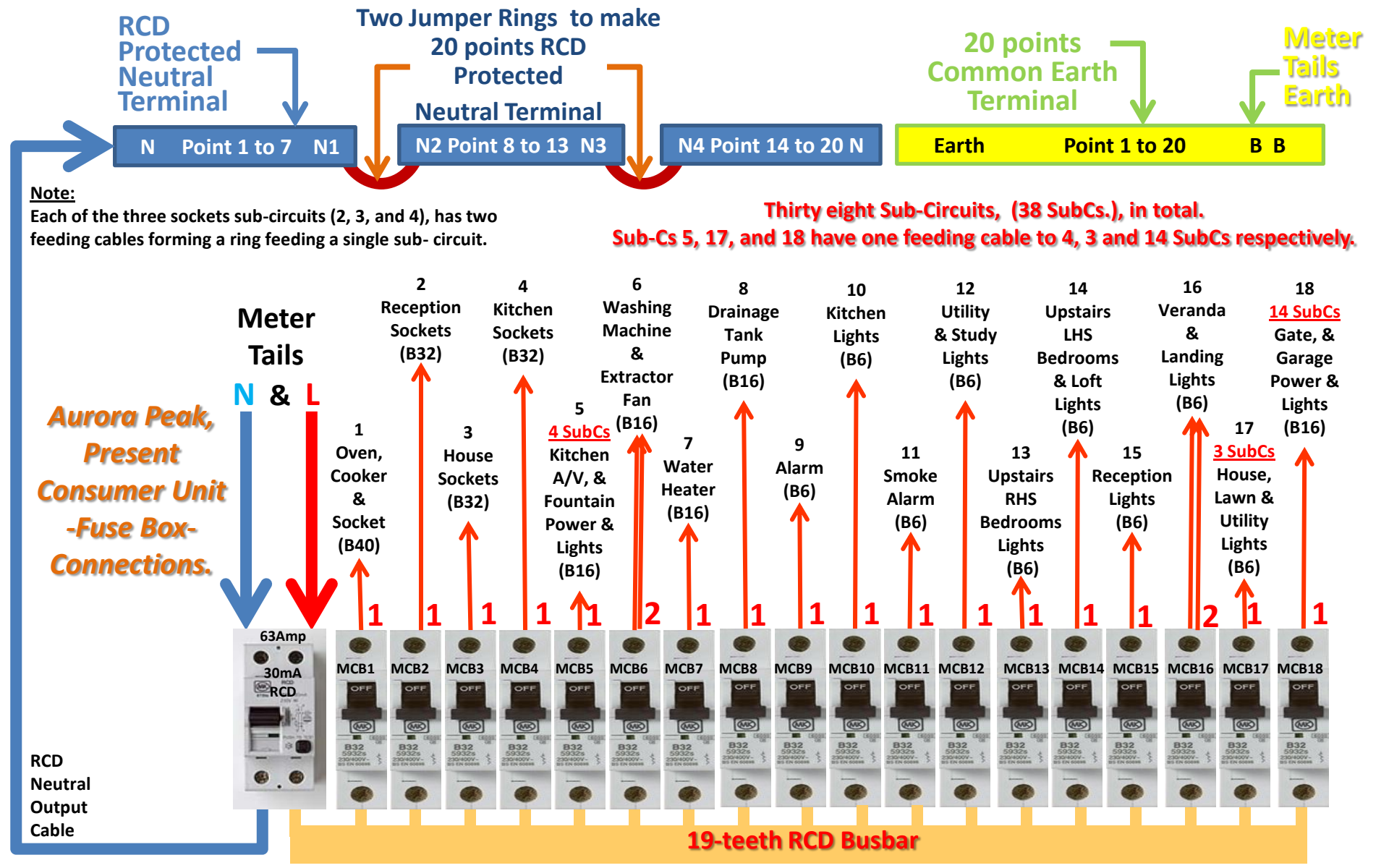


MCBs 6 and 16 feeds two Sub-Circuits, MCB 5 feeds four (4)sub-circuits, MCB17 17 feeds three (3)Sub-Circuits, and MCB 18 feeds fourteen (14)Sub-Circuits, Thirty eight Sub-Circuits, (38 SubCs), in total.

Present-CU, 20-way MK Sentry Insulated Consumer Unit, (9532PS), (W:485, H:280, & D:111mm) populated with:- One 63A-30mA RCD, & 18 MCBs.

One 40Amp, three 32Amp, five 16Amp, and nine 6Amp; total 18 MCBs.

One 19-teeth Busbar, one 20 points Neutral, and 20 points Earth terminals, no spare way.



Present-CU, 20–Way MK Sentry Insulated Consumer Unit, (9532PS), (W:485, H:280, & D:111mm) populated with:- One 63A-30mA RCD, & 18 MCBs.

One 40Amp, three 32Amp, five 16Amp, and nine 6Amp; total 18 MCBs.

One 19-teeth Busbar, one 20 points Neutral, and 20 points Earth terminals, no spare way.

Aims and Objectives:

1. The problem:

1. All sub-circuits are protected by a single 63Amp-30mA RCD; when a leak, above 30mA, occurs at any one of the 38 sub-circuits, the power and lights of all the house is switched off in one go,
2. Five MCBs protects more than one sub-circuit, each of MCB6 and MCB16 protects two sub-circuits, MCB17 protects three sub-circuits, MCB5 protects four sub-circuits, and MCB18 protects fourteen sub-circuits,
3. Sub-circuits 5, 17, and 18 are too large feeding mixed lights and power sockets,
4. Some MCBs have Amps rating larger than that of the feeding cable,
5. All X10-sub-circits have their X10 switches hidden some were not apparent to the user and have no lamp and/or momentary switches,
6. There are no apparent light indicators showing the failures of vulnerable outside house sub-circuits, and
7. The consumer unit is not easily accessible to the consumer without using a stepladder.

2. Aims and Objectives:

1. No more than seven sub-circuits should be protected by the same RCD,
2. Each MCB/RCBO should feed only one sub-circuit,
3. Large sub-circuits should be divided into their appropriate smaller sub-circuits:
    1. Sub-circuit 5 should be divided into four sub-circuits: (1) Kitchen A/V Sockets, Under Entrance Store, Sideboard Lights, and Front and Back Doors Spotlights, (2) Front garden power sockets, (3) Fountain pump {X10: 4} and lights {X10: 5}, and (4) Front Gardens Spotlights {X10: 6},
    2. Sub-circuit 17 should be divided into three sub-circuits: (1) Outside House Lights {X10: 7}, (2) Outside Utility Lights {X10: 9}, and (3) Lawn Lights {X10: 8}, and
    3. Sub-Circuit 18 should be divided into fourteen sub-circuits: (1) Gate Doors Panel, (2) Garage Door Panel, (3) Garage Sockets, (4) Garage Lights, (5) Garage IR Spotlight, (6) Garage Outside Lights {X10: 2}, (7) Terraces Lights {X10: 3}, (8) Front Gardens Water Feature {X10: 12}, (9) Front Lawn Lights {X10: 8}, (10) Front Fence Floodlights {X10: 11}, (11) Water Fall/Feature Sockets {X10: 12}, (12) Back Gardens Power Sockets, (13) BBQ Lights {X10: 10}, and (14) Back Fence Floodlights {X10: 11},
4. MCBs and RCBOs rating should be less than that of the feeding cable,
5. All X10 switches should be housed in CUs and each of them should be connected to external lamp/momentary switch as appropriate,
6. Outside the house sub-circuits should be connected through MCBs, connected directly to the mains supplied by the CU 100Amp DP switch, to external RCDs with light indicators,
7. Ideally, CUs should be easily accessible to the consumer, if this not possible then, outside house sub-circuits RCDs must be located in a space can be seen and accessed easily by the consumer.

Actions, and Solutions:

Replace the existing consumer unit with five CUs: 1. (MAIN-CU), 2. (NEW-CU), 3. (X10-CU), 4. (GARAGE-CU), and 5. (GARAGE-X10-CU).

ACTIONS: *All work should follow the IEE 17th edition recommendations and the general good practice of wiring and circuit protections.*

1. Each of sub-circuit 6 and 16 should be divided into two sub-circuits, [6 (1)] washing machine socket, [6 (2)] extractor utility fan, [16 (1)] veranda lights, and [16 (2)] landing lights,
2. Sub-circuit 5 and 17 should be divide into 4 & 3 sub-circuits respectively; the resulting 7 sub-circuits should be moved to the NEW-CU,
3. The underground 2.5mm² -23Amp-60m length cable feeding sub-circuits 18s should be protected by a 16Amp MCB and external RCD with light indicator, the MCB should be located in the NEW-CU and the RCD in the utility room.
4. Sub-circuit 18 should be divided into fourteen sub-circuits. The first five sub-circuits,18 (1) Gate Doors Panel, 18 (2) Garage Door Panel, 18 (3) Garage Sockets, 18 (4) Garage Lights, and 18(5) Garage IR Spotlight should be moved to the GARAGE-CU; The five X10 sub-circuits, 18 (6) Garage Outside Lights {X10: 2}, 18 (7) Terraces Lights {X10: 3}, 18 (8) Front Garden Water Feature {X10: 12}, 18 (9) Front Lawn Lights {X10: 8}, and 18 (10) Front Fence Floodlights {X10: 11} should be moved to the GARAGE-CU and their respective X-10 Switches should be housed in the GARAGE-X10-CU; The last four sub-circuits, 18 (11) Water Fall/Feature Sockets {X10: 12}, 18 (12) Back Gardens Power Sockets, 18 (13) BBQ Lights {X10: 10}, and 18 (14) Back Fence Floodlights {X10: 11} should be moved to the NEW-CU and their respective X-10 Switches should be housed in X10-CU,
5. Sub-circuits 8 drainage tank pump, 13 upstairs RHS bedrooms, and bathroom lights, and 14 upstairs LHS bedrooms, and loft lights should be moved to the NEW-CU,
6. A new sub-circuit (Under Cupboard Utility Lights) should be installed and added to the NEW-CU, and
7. A new X10 sub-circuit (Garage Door Lights {X10: 1}) should be installed and added to the GARAGE-CU /GARAGE-X10-CU.

The total sub-circuits moved to the NEW-CU is fourteen, plus one MCB for the underground garage cable, and one RCBO for the new sub-circuit (14+2) and that, moved to the GARAGE-CU is nine, plus one MCB for the new sub-circuit garage door lights (10+1), the remaining sub-circuits in the MAIN-CU is (14), the X10-CU house nine (9) and the GARAGE-X10-CU house (6) X10 sub-circuits switches.

CUs Configurations:

MAIN-CU, 20-way MK consumer unit populated with: One 100Amp Main DP Switch, one 63Amp-30mA RCD-1, one 40Amp-30mA RCD-2, one 6Amp-30mA RCBO, 13 MCBs, four 32Amp MCBs, two 16Amp MCBs, and seven 6Amp MCBs, no spare-way, configured as follows:

- Sub-circuit 1(12) utility and study lights to be protected by the RCBO,
- Sockets sub-circuits 2(1), 3(2), 4(3), 5(4), 6[(6(1)] and 7(7) to be protected by six MCBs, (MCB1 to MCB6), and RCD-1, and
- Lights sub-circuits 8[6(2)], 9(9), 10(10), 11(11), 12(15), 13[16(1)] and 14[16(2)] to be protected by seven MCBs, (MCB7 to MCB13), and RCD-2.

CUs Configurations:

NEW-CU, 18-way CED consumer unit populated with:- 100Amp Main DP Switch, four16Amp MCBs, eight 6Amp-30mA RCBOs, two 10Amp-30mA RCBOs, and two 16Amp-30mA RCBOs, no spare-way, configured as follows:

- The eight X10 sub-circuits 1, 2, 3, 4,5,6, 7, and 11 to be protected by RCBO1 to RCBO7 and RCBO11 respectively,
- Sub-circuits 8[5(2)] front gardens power sockets, 9(13) upstairs RHS bedrooms and bathroom, and 12(14) upstairs LHS bedrooms and loft lights to be protected by RCBO8, RCBO9, and RCBO12 respectively.
- New sub-circuit 10 under cupboard utility lights to be protected by RCBO10,
- Sub-circuit 13 (8) drainage tank pump to be protected by MCB1 and external RCD (RCD-1),
- Garage underground 2.5mm², 23 Amp, 60m length cable to be protected by MCB2 and external RCD (RCD-2),
- Sub-circuit 15 [5 (1)] kitchen A/V sockets, under entrance store, sideboard lights and the front and back doors spotlights to be protected by MCB3 and external RCD (RCD-3), and
- Sub-circuit 16 [18 (12)] back gardens power sockets to be protected by MCB4 and external RCD (RCD-4).

(Note: all of the four external 13Amp-30mA RCDs are with light indicators and located in the utility room).

X10-CU, 21-way MK consumer unit populated with:- Nine X10-AD11, and one spare X10-AD11, one spare-ways, configured as follows:

- RCBO1, RCBO2, RCBO3, RCBO4, RCBO5, RCBO6, RCBO7, and RCBO11 of the New-CU protects X-10 sub-circuits 1, 2, 3, 4, 5, 6, 7, and 11 respectively. (Note: the fountain X10 Sub-circuit 7 feeds two X10 switches, fountain pump, and fountain lights).

GARAGE-CU, 21-way MK consumer unit populated with: One Main 100Amp DP Switch, one 63Amp-30mARCD-1, two 80Amp-30mA RCD-2 and RCD-3, two 6Amp-30mA RCBOs (RCBO1 and RCBO2), two 16Amp MCBs, and six 6Amp MCBs, two spare-ways, configured as follows:-

- Sub-circuits 1 [8 (6)] Garage outside lights {X10: 2} and 2 [18 (7)] Terraces lights X10: 3} to be protected by RCBO1, and RCBO2,
- Sub-circuit 3 [18 (8)] Front Gardens Water Feature {X10; 9}, 4 [18 (9] Front Lawn Lights {X10: 8}, 5 [18 (10)] Front Fence Floodlights {X10: 11}, and 6 Garage Door Lights {X10: 1} to be protected by MCB1, MCB2, MCB3, MCB4, and RCD-1.
- Sub-circuits 7 [18 (1)] Gate Doors Panel, 8 [18 (2)] Garage Door Panel, and 9 [18(5)] Garage IR Spotlight to be protected by MCB5, MCB6, MCB7 and RCD-2,
- Sub-circuits 10 [18 (3)] Garage Sockets, 11 [18 (4)] Garage Lights, to be protected by MCB8, MCB9, and RCD-3,

GARAGE-X10-CU, 12-way MK consumer unit with: six X10-AD11, no spare-way, configured as follows:RCBO1, RCBO2, MCB1, MCB2, MCB3, and MCB4, and RCD-1 of the GARAGE-CU protect the six X10 switches loads respectively.

MAIN-CU have (1) RCBO & (13) MCBs, NEW-CU have (4) MCBs & (12) RCBOs, GARAGE-CU(2) RCBOs & (9) MCBs .
(41) MCBs/RCBOs in total; Each of the (41) MCBs/RCBOs protects a single sub-circuit.

Overall Total:
41 MCBs/RCBOs in total +
9 RCDs, 5 Internal, and 4 External RCDs.

MAIN-CU RCBO1 & 2

Note: MAIN-CU, 1 RCBO, 13 MCBS, and 2 RCDs.

1 (12) Utility and Study Lights, (B6), 1 SubC.	RCBO	1.5mm² – 16.5Amp	30W

MAIN-CU RCD-1

2 (1) Oven, Cooker, and Socket, (B32), 1 SubC.	MCB1	6mm² - 38Amp	3.8KW
3 (2) Reception Sockets, (B32), 1 SubC.	MCB2	2X2.5mm² - 23Amp	2.8KW
4 (3) House Sockets, (B32), 1 SubC.	MCB3	2X2.5mm² - 23Amp	2.8KW
5 (4) Kitchen Sockets, (B32), 1 SubC.	MCB4	2X2.5mm² - 23Amp	2.8KW
6 [6(1)] Washing Machine Socket, (B16), 1 SubC.	MCB5	2.5mm² - 23Amp	2KW
7 (7) Water Heater, (B16), 1 SubC.	MCB6	1.5mm² – 16.5Amp	1KW

MAIN-CU RCD-2

8 [6(2)] Extractor Utility Fan, (B6), 1 SubC.	MCB7	1.5mm2 – 16.5Amp	45W
9 (9) Alarm, (B6), 1 SubC.	MCB8	1mm² - 13Amp	5W
10 (10) Kitchen Lights, (B6), 1 SubC.	MCB9	1.5mm² – 16.5Amp	36W
11 (11) Smoke Alarm, (B6), 1 SubC.	MCB10	1mm² - 13Amp	5W
12 (15) Reception Lights, (B6), 1 SubC.	MCB11	1.5mm² – 16.5Amp	60W
13 [16 (1)] Veranda, (B6), 1 SubC.	MCB12	1.5mm² – 16.5Amp	45W
14 [16 (2)] Landing Lights, (B6), 1 SubCs.	MCB13	1.5mm² – 16.5Amp	24W

NEW-CU RCBO 1 to 12

Note: NEW-CU, 4 MCBs, and 12 RCBOs.

1 [17 (1)] House Lights {X10: 7}, (B6) 1 SubC.	RCBO1	1.5mm² – 16.5Amp	228W
2 [17 (2)] Lawn Lights {X10: 8}, (B6), 1 SubC.	RCBO2	1.5mm² – 16.5Amp	132W
3 [17 (3)] Utility Lights {X10: 9}, (B6), 1 SubC.	RCBO3	1.5mm² – 16.5Amp	84W
4 [18 (13)] BBQ Lights {X10: 10}, (B6), 1 SubC.	RCBO4	1.5mm² – 16.5Amp	132W
5 [18 (14) & (13)] Fence Floodlights {X10: 11}, (B16), 1 SubC.	RCBO5	2.5mm² – 23.Amp	2KW
6 [18 (11)] Water Fall/Feature {X10: 12}, (B16), 1 SubC.	RCBO6	2.5mm² – 23.Amp	700W
7 [5 (3)] Fountain Pump {X10: 4}, & Lights {X10-: 4}, (B6), 1 SubC.	RCBO7	0.75mm² – 6Amp	30W
8 [5 (2)] Front Garden Socket, (B16), 1 SubC.	RCBO8	2.5mm² – 23.Amp	1.2KW
9 (13) Upstairs RHS Bedrooms, & Bathroom Lights, (B6), 1 SubC.	RCBO9	1mm² – 13Amp	30W
10 New Under Cupboard Utility Lights, (B6), 1 SubC.	RCBO10	1.5mm² – 16.5Amp	25W
11 [5 (4)] Front Garden Spotlights {X10; 8}, (B6), 1 SubC.	RCBO11	1.5mm² – 16.5Amp	300W
12 (14) Upstairs LHS Bedrooms, & Loft Lights, (B10), 1 SubC.	RCBO12	1mm² – 13Amp	100W

NEW-CU External RCD 1, 2, 3, & 4

13 (8) Drainage Tank Pump, (B16), 1 SubC.	MCB1	2.5mm² – 23.5Amp	1.2KW
14 Garage Underground 2.5mm², 23 Amp, 60m Cable, (B16), 1 SubC.	MCB2	2.5mm² – 23.5Amp	1.2KW
15 [5 (1)] Kitchen A/V Sockets, Under Entrance Store, Sideboard Lights, and Doors Spotlights (B16), 1 SubC.	MCB3	2.5mm² – 23.5Amp	500W
16 [18 (12)] Back Garden Sockets, (B16), 1 SubC.	MCB4	2.5mm² – 23.5Amp	1.2KW

GARAGE-CU RCBO 1 & 2

Note: GARAGE-CU,2 RCBOs, 9 MCBs, and 3 RCDs.

1 [18(6)] Garage OUTSIDE Lights {X10: 2}, (B6) 1 SubC.	RCBO1	1.5mm² – 16.5Amp	48W
2 [18(7)] Terraces Lights {X10: 3}, (B6) 1 SubC.	RCBO2	1.5mm² – 16.5Amp	57W

GARAGE-CU RCD-1

3 [18(8)] Front Gardens Water Feature {X10: 12}, (B6) 1 SubC.	MCB1	1mm² – 13Amp.	250W
4 [18(9)] Front Lawn Lights {X10: 8}, (B6) 1 SubC.	MCB2	1mm² – 13Amp	90W
5 [18(10)] Front Fence Lights {X10: 11}, (B16) 1 SubC.	MCB3	2.5mm² – 23.5Amp	1KW
6 Garage Door Light Lights {X10: 1}, (B6) 1 SubC.	MCB3	1.5mm² – 16.5Amp	200W

GARAGE-CU RCD-2

7 [18(1)] Gate Doors Panel}, (B6) 1 SubC.	MCB5	1.5mm² – 16.5Amp	300W
8 [18(2)] Garage Door Panel, (B6) 1 SubC.	MCB6	1.5mm² – 16.5Amp	300W
9 [18(5)] Garage IR Spotlights, (B6) 1 SubC.	MCB9	1.5mm² – 16.5Amp	160W

GARAGE-CU RCD-3

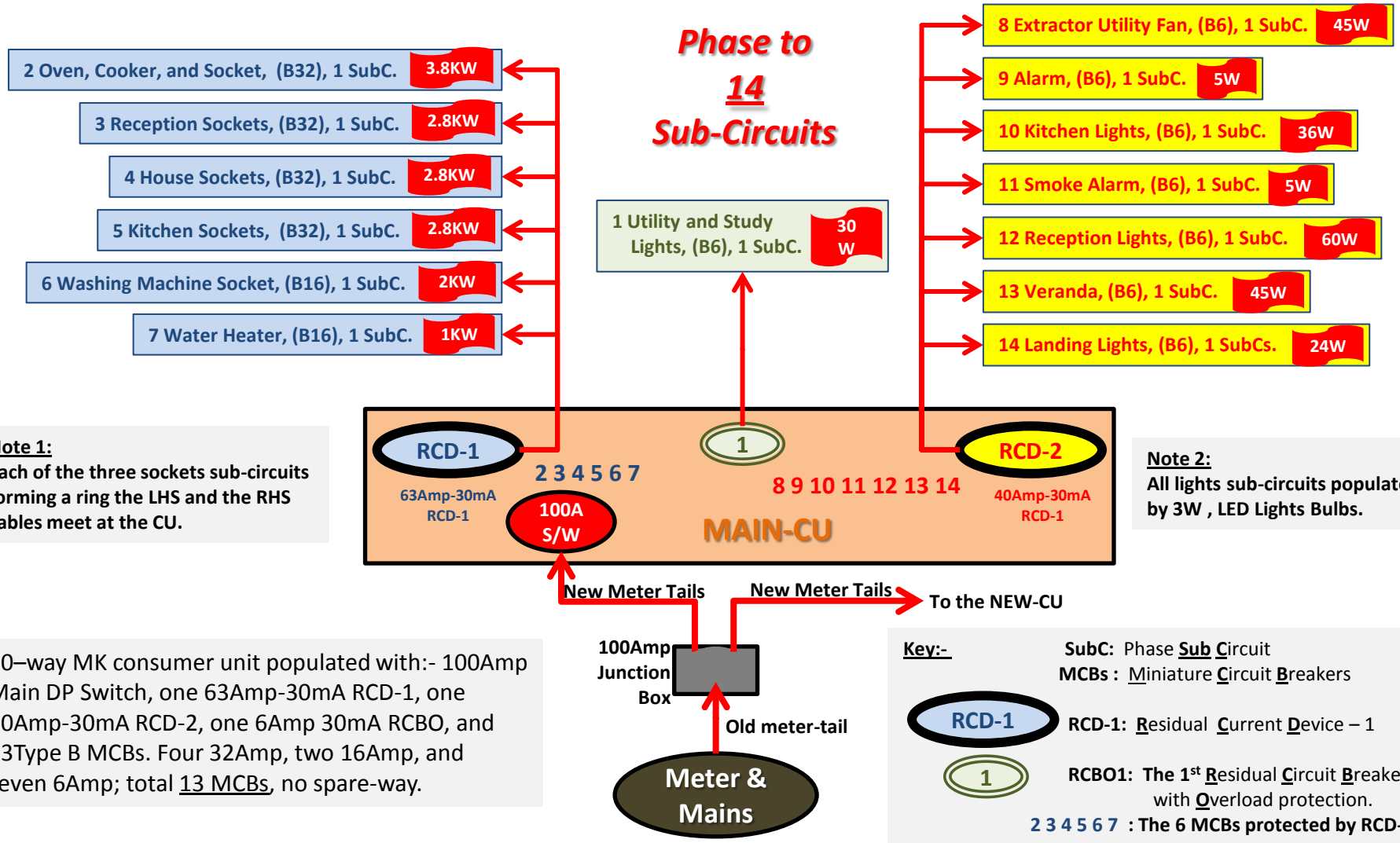
10 [18(3)] Garage Sockets}, (B16) 1 SubC.	MCB7	2.5mm² – 23.5Amp	1.2KW
11 [18(4)] Garage Lights} (B6) 1 SubC.	MCB8	1.5mm² – 16.5Amp	150W

MAIN-CU

MAIN-CU 20way 100Amp DP switch, two RCDs, one RCBO, and 13 MCBs.

Note:

1. Move sub-circuits 5, 8, 13, 14, 17, and 18 to the NEW-CU,
2. Divided the double sub-circuits 6 and 16 into two sub circuits,
3. Populate the 21-way MK CU with 100Amp Main DP switch, 63Amp-30mA RCD-1, 40Amp-30mA RCD-2, one 6Amp-30mA RCBO, and 13 type B MCBs.



Note 1:
Each of the three sockets sub-circuits forming a ring the LHS and the RHS cables meet at the CU.

Note 2:
All lights sub-circuits populated by 3W , LED Lights Bulbs.

20–way MK consumer unit populated with:- 100Amp Main DP Switch, one 63Amp-30mA RCD-1, one 40Amp-30mA RCD-2, one 6Amp 30mA RCBO, and 13Type B MCBs. Four 32Amp, two 16Amp, and seven 6Amp; total 13 MCBs, no spare-way.

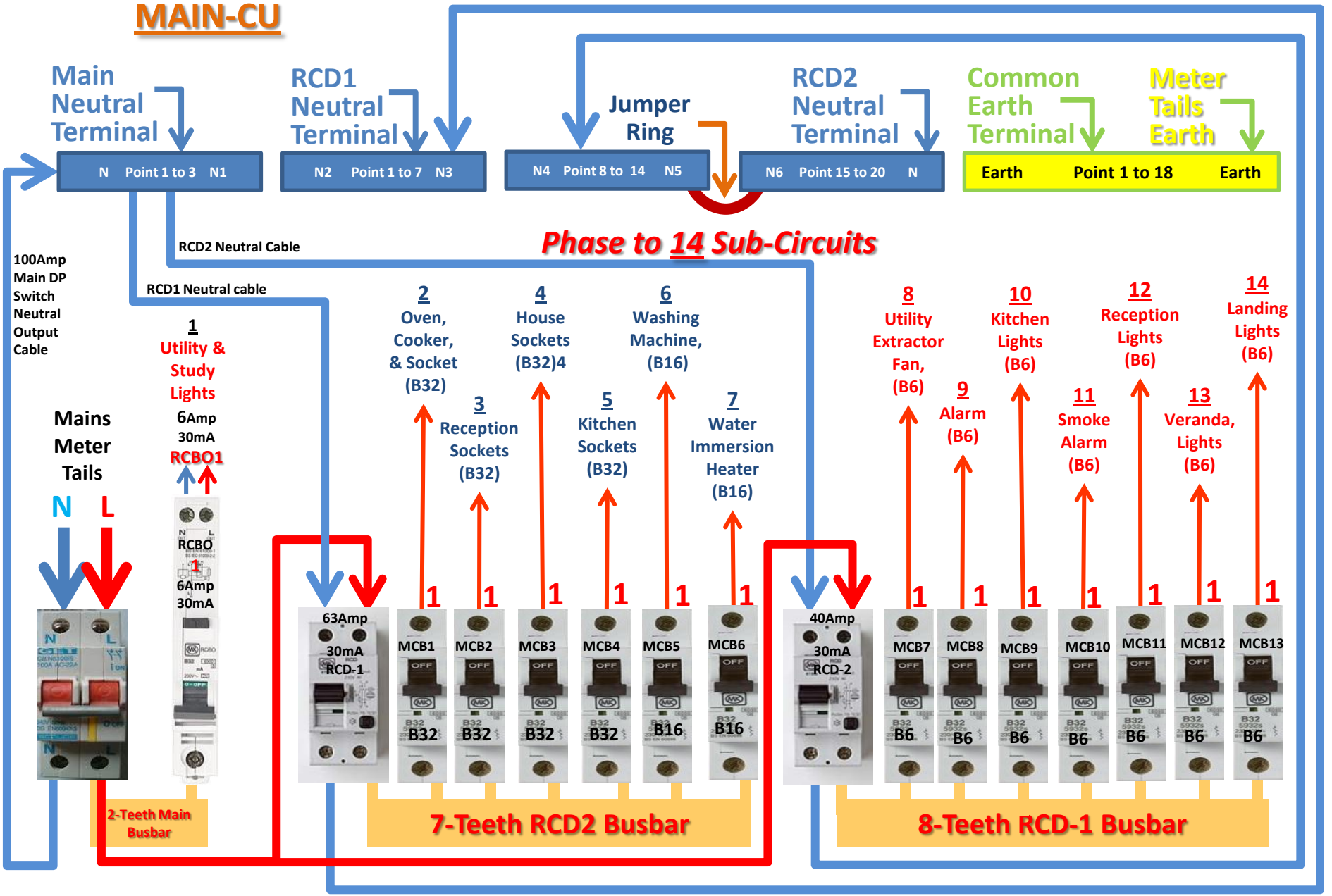
Key:-

SubC: Phase **Sub** Circuit
MCBs : Miniature **C**ircuit **B**reakers

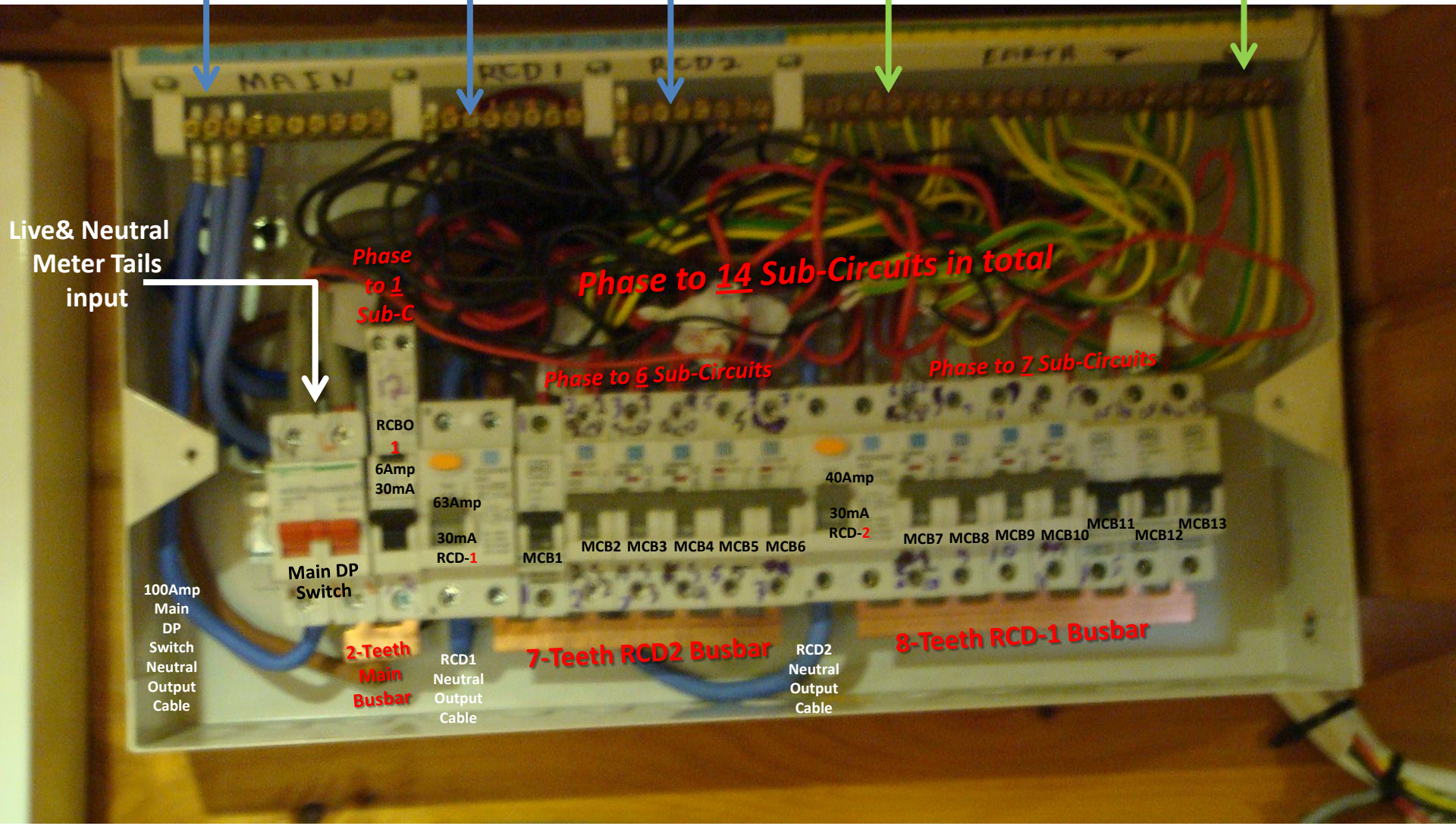
RCD-1 — **RCD-1:** **R**esidual **C**urrent **D**evice – 1

1 — **RCBO1: The 1st R**esidual **C**ircuit **B**reaker with **O**verload protection.

2 3 4 5 6 7 : The 6 MCBs protected by RCD-1.

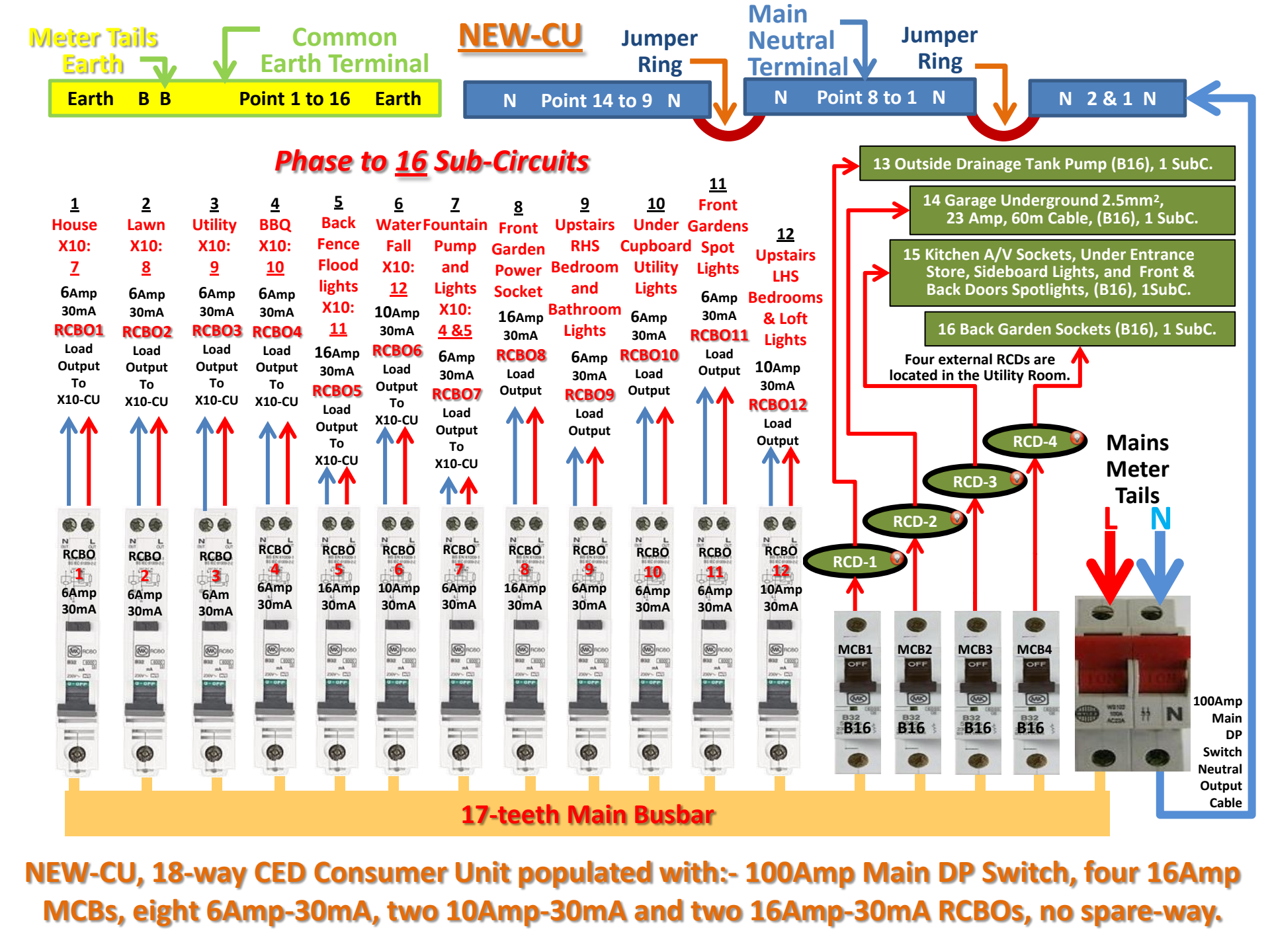


MAIN-CU, 20-way MK CU populated with: one 100Amp Main DP Switch, one 63Amp-30mA RCD1, one 40Amp-30mA RCD2, one 6Amp-30mA RCBO, four 32Amp MCBs, two 16Amp MCBs, and seven 6Amp MCBs, no spare-way.



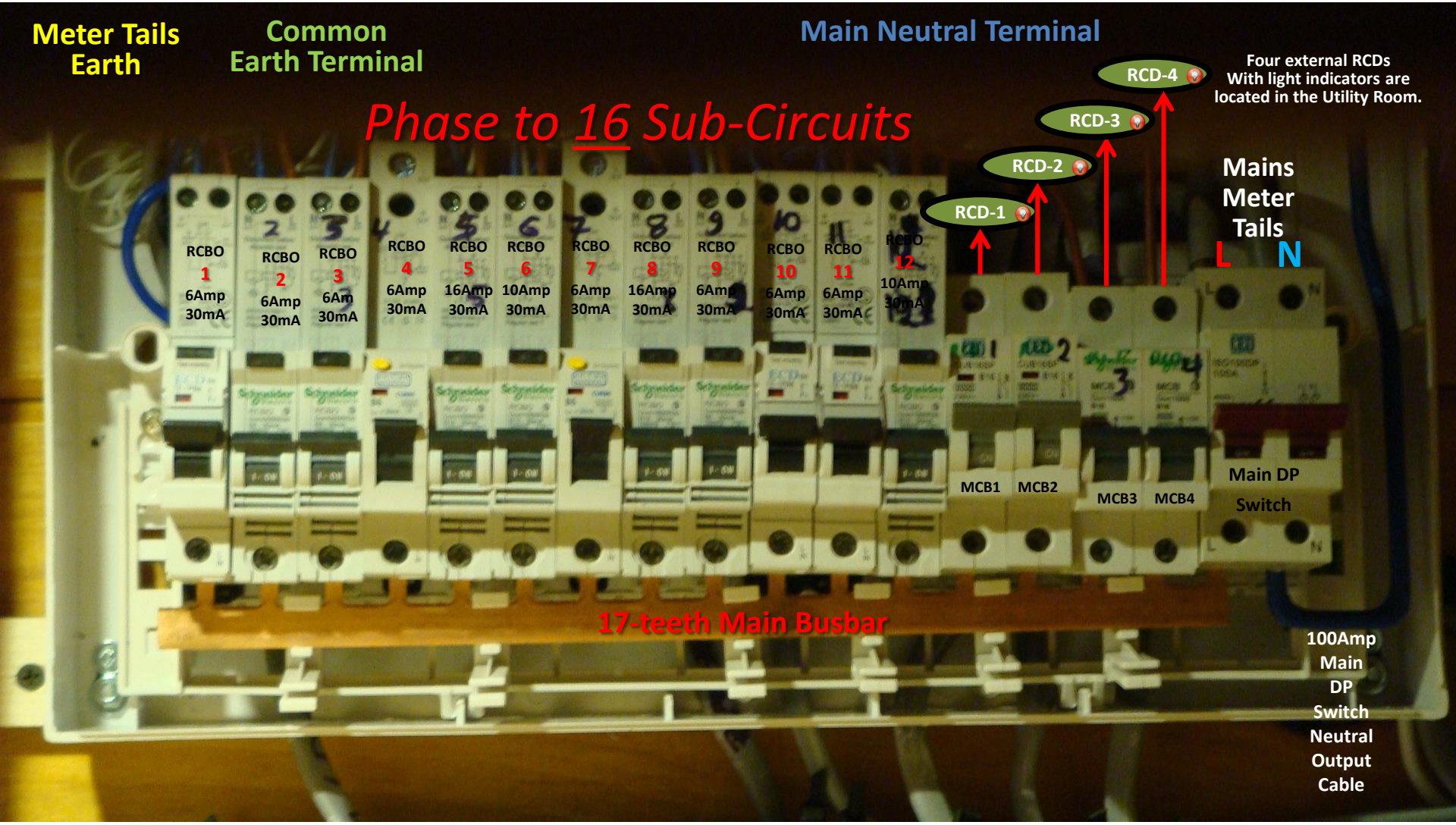
Picture of:

MAIN-CU, 20-way MK CU populated with: one 100Amp Main DP Switch, one 63Amp-30mA RCD1, one 40Amp-30mA RCD2, one 6Amp-30mA RCBO, four 32Amp MCBs, two 16Amp MCBs, and seven 6Amp MCBs, no spare-way.



NEW-CU, 18-way CED Consumer Unit populated with:- 100Amp Main DP Switch, four 16Amp MCBs, eight 6Amp-30mA, two 10Amp-30mA and two 16Amp-30mA RCBOs, no spare-way.

NEW-CU



Picture of:

NEW-CU, 18-way CED Consumer Unit populated with:- 100Amp Main DP Switch, four 16Amp MCBs, eight 6Amp-30mA, two 10Amp-30mA and two 16Amp-30mA RCBOs, no spare-way.

X10 -AD11: Appliances Module, Occupies 2-ways, with Lamp, and momentary switch terminals 1, and 2. These switches are connected by three 0.75 mm², two seven-core, and one 3-core cables; the block colures show the colour of each connecting wires. The Fountain is connected by 0.75 mm² five-core cables, the boarder shows the colour of each connecting wires. Neutral is double wires (blue and black), and earth yellow/green.

X10-CU

21–way MK Consumer Unit, with:- Ten X10-AD11 switches, one spare AD11, and one spare-ways. Colours blocks borders indicates the colour of the wires connecting Lamp/momentary terminals

Common Earth Terminal

Meter Tails Earth

Earth | Point 1 to 18 | Earth

Meter Tails Earth From The NEW-CU

1 House Lights B6 {X10: 7} 228W

2 Lawn Lights B6 {X10: 8} 132W

3 Utility Lights B6 {X10: 9} 84W

4 BBQ Lights B6 {X10: 10} 132W

5 Back Fence Floodlights, B16 {X10: 11} 2KW

6 Water Fall B16 {X10: 12} 700W

7 Fountain Pump B6 {X10: 4} 15W

8 Fountain Lights B6 {X10: 5} 15W

9 Front Gardens Spotlights {X10: 6} 300W

Brown | Red | White | Yellow | Gray | Blue | Black | Gray 2 | White 2

{X10: 7} AD11-1 H

{X10: 8} AD11-2 L

{X10: 9} AD11-3 U

{X10: 10} AD11-4 BBQ

{X10: 11} AD11-5 F

{X10: 12} AD11-6 W

{X10: 4} AD11-7 FP

{X10: 5} AD11-8 FL

{X10: 6} AD11-9 FGS

Spare LD11

Brown 2 | Yellow 3 | Red 2 | Brown 3 | Black 2 | Yellow 2 | Blue 2 | Blue 3

L N

RCBO-1 (B6), of NEW-CU Load Output

RCBO-2 (B6), of NEW-CU Load Output

RCBO-3 (B6) of NEW-CU Load Output

RCBO-4 (B6) of NEW-CU Load Output

RCBO-5 (B16) of NEW-CU Load Output

RCBO-6 (B10), of NEW-CU Load Output

RCBO-7 (B6), of NEW-CU Load Output

RCBO-11 (B16) of NEW-CU Load Output

X10-CU, 21-way MK consumer unit populated with: Nine X-10-AD11, and one spare X10-LD11, no spare-way.

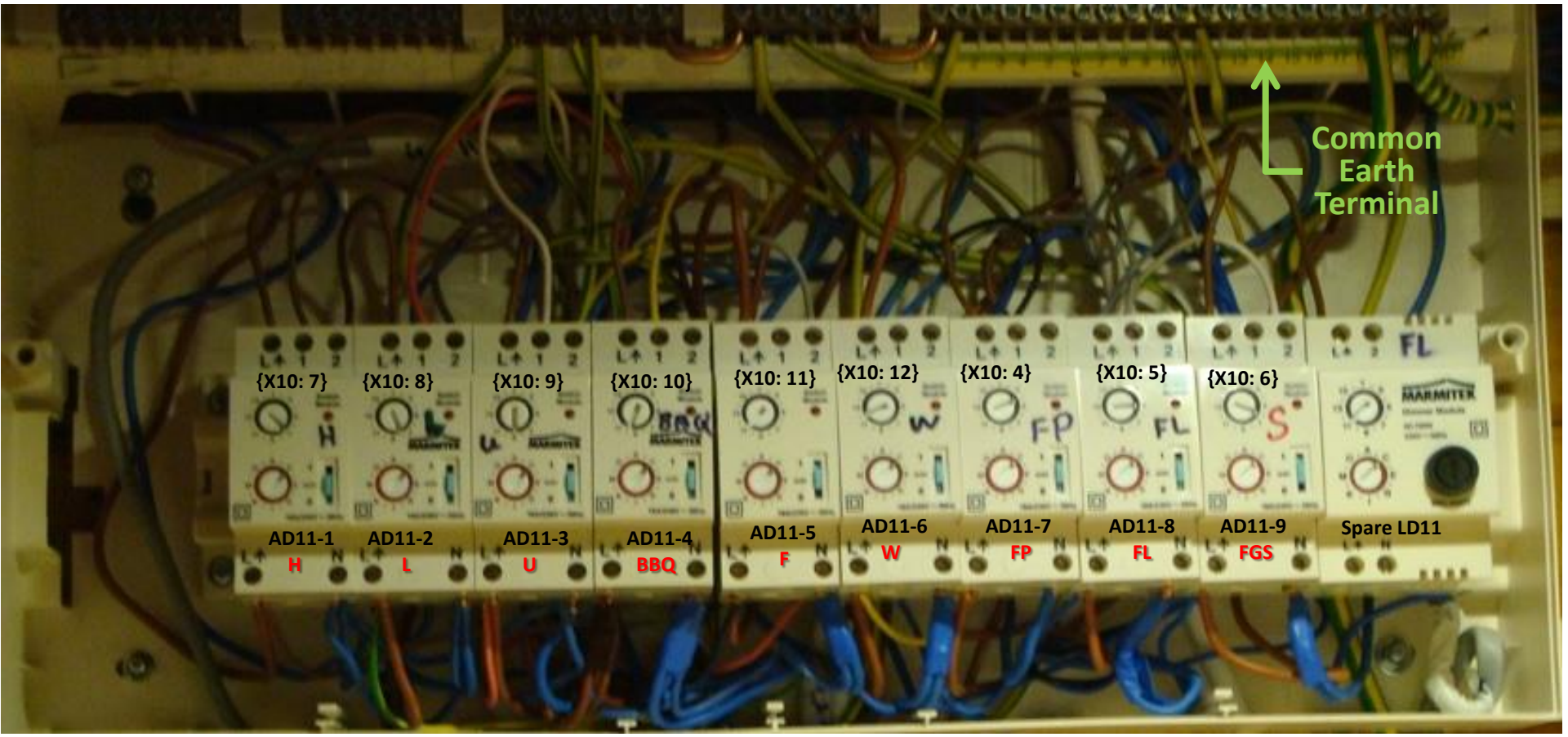
X10 Address: C

1 Doors
2 Garage
3 Terraces
4 Fountain
5 Colours
6 Spotlights
7 House
8 Lawns
9 Utility
10 BBQ
11 Floodlights
12 Water

X10 -AD11: Appliances Module, Occupies 2-ways, with Lamp, and momentary switch terminals 1, and 2. These switches are connected by three 0.75 mm², two seven-core, and one 3-core cables; the block colures show the colour of each connecting wires. The Fountain is connected by 0.75 mm² five-core cables, the boarder shows the colour of each connecting wires. Neutral is double wires (blue and black), and earth yellow/green.

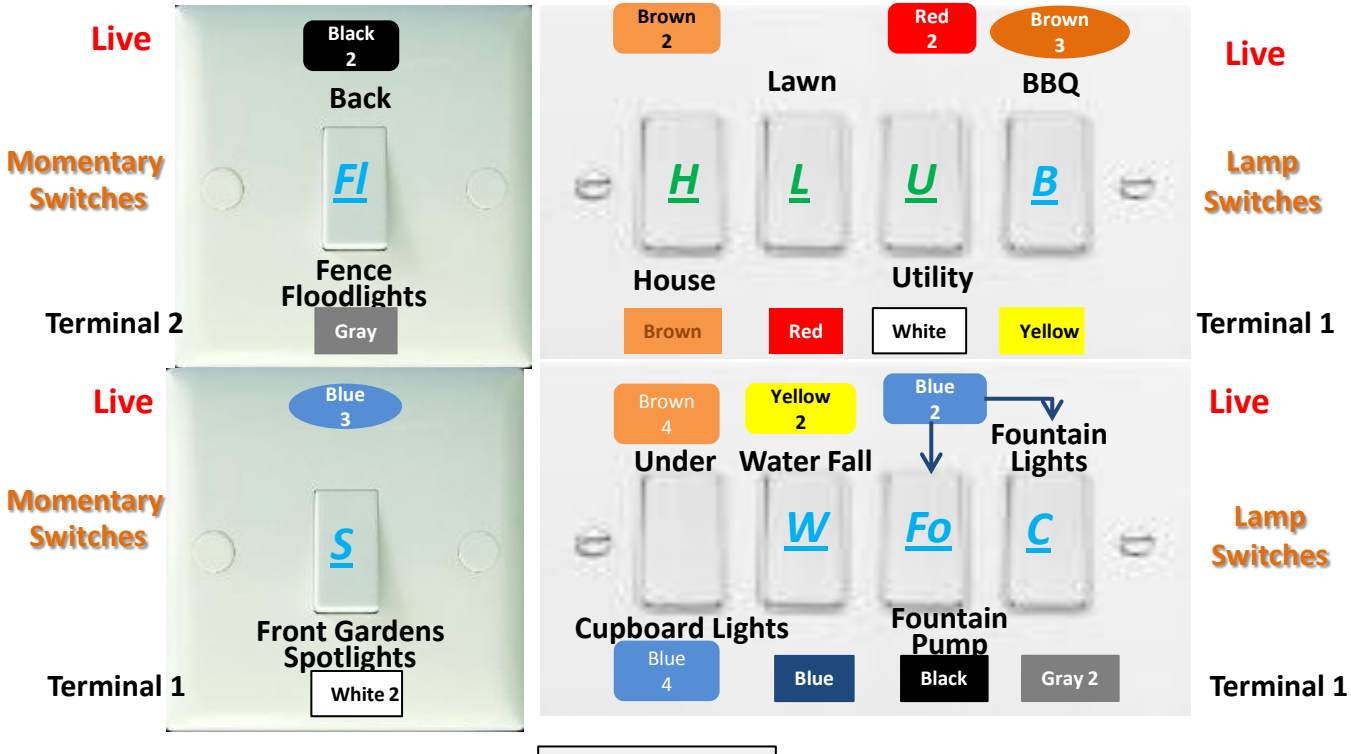
21–way MK Consumer Unit, with:- Ten X10-AD11 switches, one spare AD11, and one spare-ways. Colours blocks borders indicates the colour of the wires connecting Lamp/momentary terminals

X10-CU



Picture of :

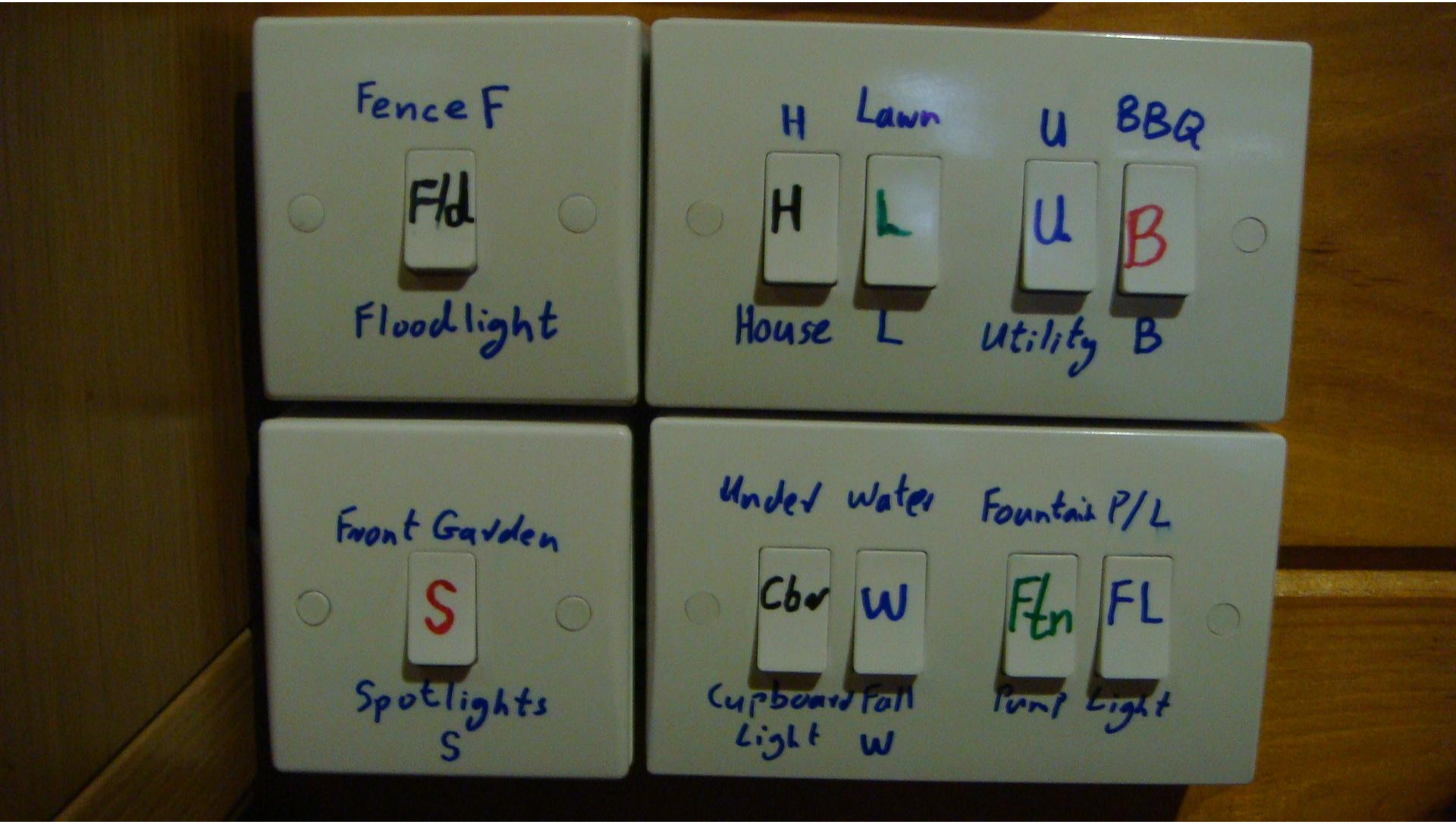
X10-CU, 21-way MK consumer unit populated with: Nine X-10-AD11, and one spare X10-LD11, no spare-way.



X10 Address: C

1 *D*oors
2 *G*arage
3 *T*erraces
4 *Fo*untain
5 *C*olours
6 *S*potlights
7 *H*ouse
8 *L*awns
9 *U*tility
10 *B*BQ
11 *Fl*oodlights
12 *W*ater

Utility Room X10-AD11 Terminals Lamp Switches



Picture of:

Utility Room X10-AD11 Terminals Lamp Switches

GARAGE-CU

Phase to 11 Sub-Circuits

1 Garage Outside Lights, {X10: 2}, (B6), 1 SubC. 250W

2 Terraces Lights 57W
{X10: 3}, (B6), 1 SubC.

3 Front Gardens Water 10W
Feature {X10: 12}, (B6), 1 Sub-C.

4 Front Lawn Lights X10: 8}, (B6), 1 Sub-C. 90W

5 Front Fence Floodlights 1KW
{X10: 11}, (B16), 1 Sub-C.

6 Garage Door Lights 250W
{X10: 1}, (B6), 1 Sub-C.

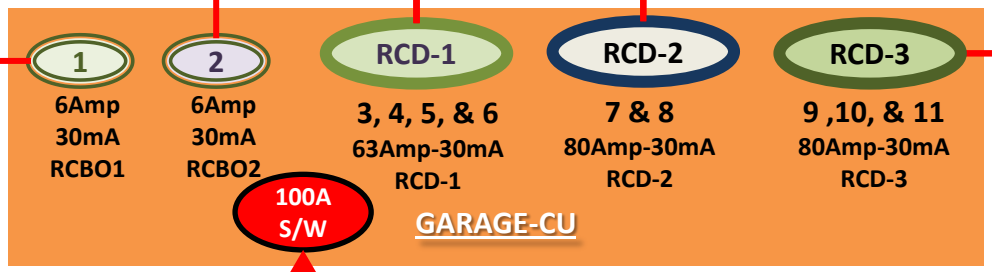
7 Gate Doors Panel, (B6), 1 SubC. 300W

8 Garage Door Panel, (B6), 1 SubC. 300W

9 Garage Door IR Spotlights, (B6), 1 SubC. 160W

10 Garage Sockets, (B16), 1 SubC 1.2.KW

11 Garage Lights, (B6), 1 SubC. 150W



Note: The garage is connected by underground 2.5mm²-23Amp, 60m length cable, which is protected by 16Amp MCB-2 of the NEW-CU & external RCD-2 in the Utility Room. The cable feeds this GARAGE-CU.

2.5mm²
23Amp
Garage
Mains

Garage Mains

21–way MK Consumer Unit populated with:- 63Amp-30mA RCD-1, 80Amp-30mA RCD-2, 80Amp-30mA RCD-3, 6Amp-30mA RCBO1, 6Amp-30mA RCBO2, two 16Amp MCBs, and nine 6Amp MCBs, two spare 16Amp MCBs.

Key:-

SubC: Phase Sub Circuit
MCBs : Miniature Circuit Breakers

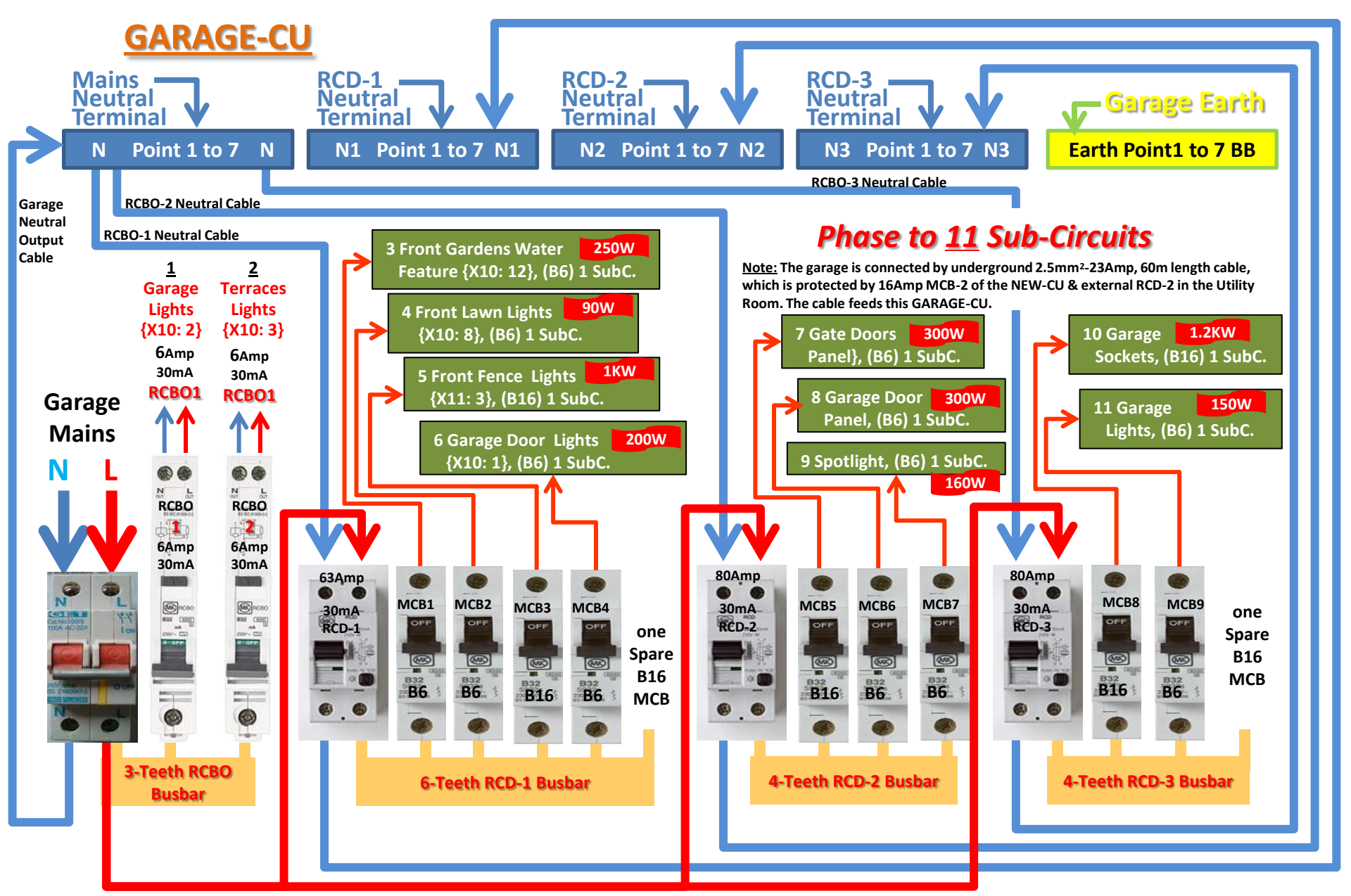
RCD-2

RCD-2: Residual Current Device – 2

1

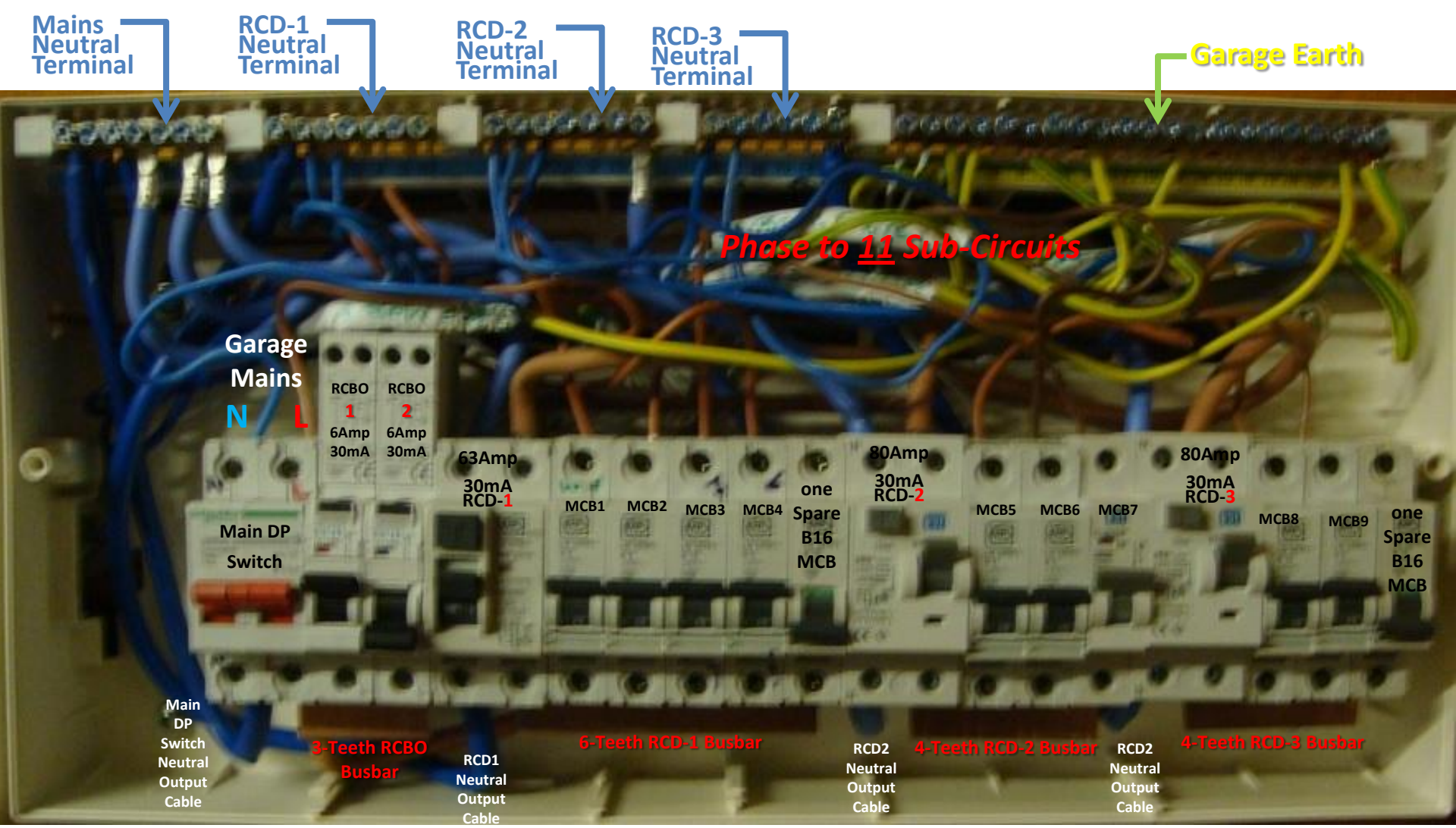
RCBO1: The 1st Residual Circuit Breaker with Overload protection.
7 & 8: The 2 MCBs protected by RCD-2.

GARAGE-CU, 21-way MK consumer unit populated with: One Main 100Amp DP Switch, three RCDs, two RCBOs, and nine MCBs, two spare 16Amps MCBs.



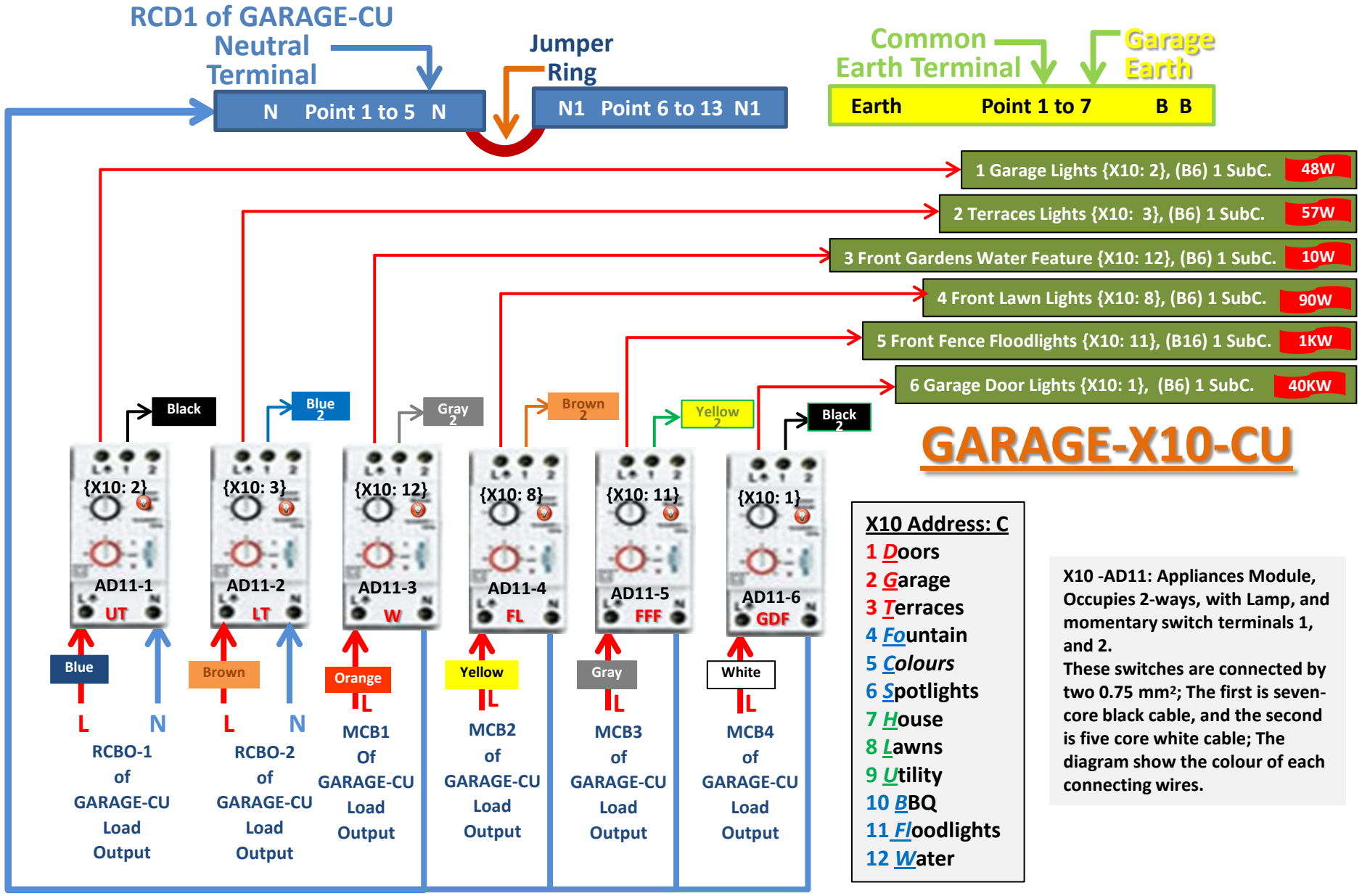
GARAGE-CU, 21-way MK consumer unit populated with: One Main 100Amp DP Switch, three RCDs, two RCBOs, and eleven MCBs, two spare-MCBs.

GARAGE-CU



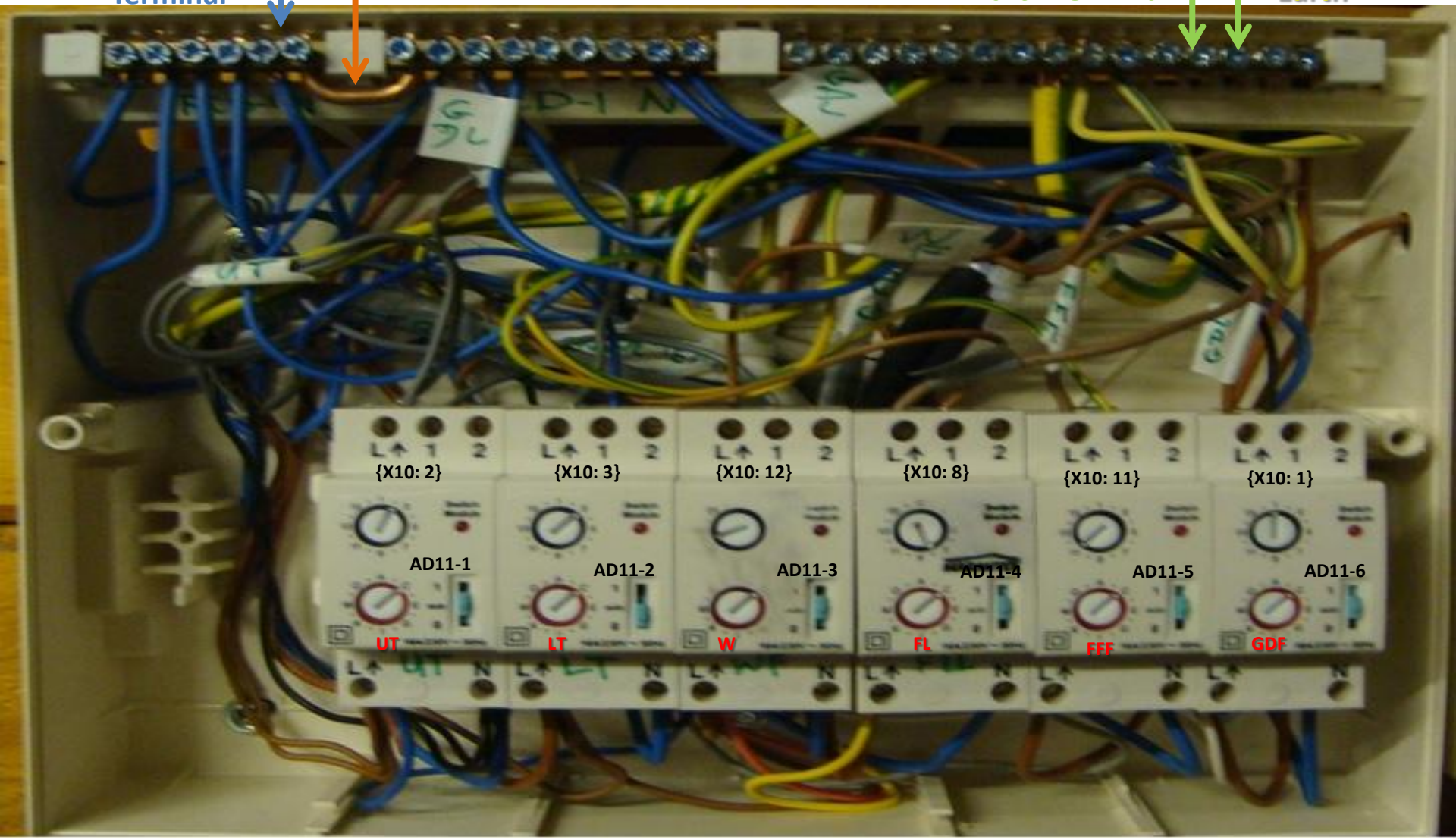
Picture of:

GARAGE-CU, 21-way MK consumer unit populated with: One Main 100Amp DP Switch, three RCDs, two RCBOs, and eleven MCBs, two spare-MCBs.



GARAGE-X10-CU, 12-way MK consumer unit populated with: six X10-LD11, switches, no spare-way.

GARAGEX-10-CU



Picture of:

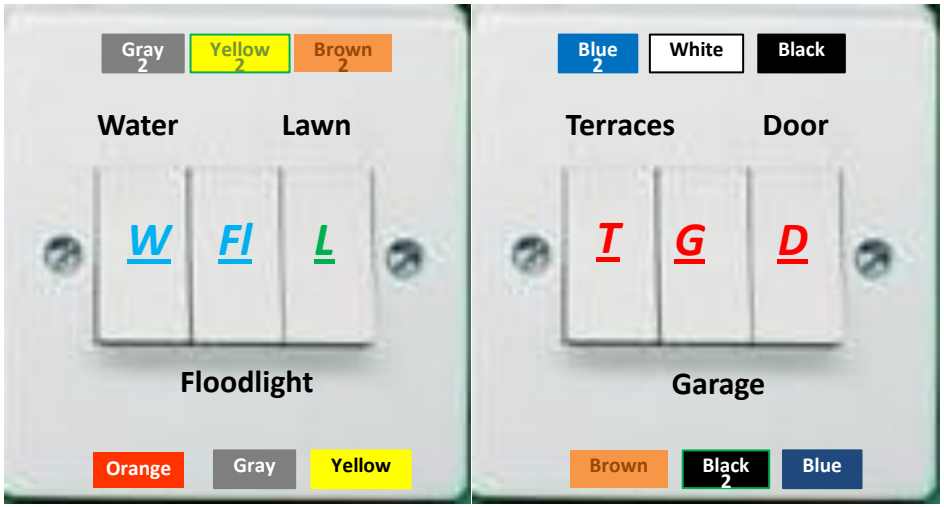
GARAGE-X10-CU, 12-way MK consumer unit populated with:

six X10-LD11, switches, no spare-way.

Live

Lamp Switches

Terminal 1



Live

Lamp Switches

Terminal 1

X10 Address: C

1 *D*oors
2 *G*arage
3 *T*erraces
4 *Fo*untain
5 *C*olours
6 *S*potlights
7 *H*ouse
8 *L*awns
9 *U*tility
10 *B*BQ
11 *Fl*oodlights
12 *W*ater

GARAGE-LD11Terminals Switches

GARAGE-LD11Terminals Switches