

An Alert regarding Z21 Accessory Addressing problems

Z21 is a nice product, but it has some hidden quirks.

We first found out about the problem with Z21 and the setting of Accessory addresses when a client claimed that they could not turn "self centering" on or off on a Cobalt iP Digital unit.

Having done a huge variety of tests with DCC systems when creating Cobalt iP Digital, we knew that it worked as designed... So why would it not work with Z21?

First, we will explain how Cobalt iP Digital makes using some of its special functions easy to use by utilising Accessory addresses and not CV settings.

Cobalt iP Digitals "Special functions"

- Cobalt iP Digital comes with three handy and easy to use software commands that we added based on customer request. We know some modellers dislike having to do programming on decoders so to make it easy for all, they are all activated or deactivated via the use of standard "address numbers"
- We considered all common brands when choosing which addresses to use. Initial preference was to use a number that was close to the DCC standards limit, but we knew some DCC brands can only do far fewer accessories. In the end we chose numbers that were high and unlikely to be needed for other things but still within the capabilities of systems that couldn't manage the "full DCC standards range of 1 to 2044"
- We eventually chose to use Addresses 197, 198 and 199.
- **199 Activates "Self Centering"** of the Cobalt iP Digital throw-bar (making it ready to install).
- **198 De-activates "Self Centering"** of the Cobalt iP Digital throw-bar (making it ready to use).
- **197 "Flips the change direction"** so that you can synchronise motor-change directions in a crossover, or with computer diagrams and software that do not have this ability built-in.

Using these functions is as easy as setting the address as it is almost the same process!

- Connect Cobalt iP Digital (or AD-2fx/AD-8fx as it works with them when using Cobalt iP Analog).
- Move the "set-run" switch to the "Set" position.
- Set the "address" to the number corresponding with the special function that you want to activate.
- Return the "set-run" switch to the "Run" position.
- Cycle the power (disconnect / reconnect the power wires)
- Now repeat the process, setting the Cobalt iP Digital (or AD-2fx/AD-8fx) to the address you want it to be.

It works perfectly with mall DCC compliant brands... But... for some reason, this easy process would not work with Z21... and we found that Roco are aware they have an address problem.

Z21 attempt to describe their addressing problem like this.

"Older style decoders will work, but Z21 will run new decoders much more easily. To ensure compatibility with older Roco decoders, the Z21 treats newer accessory decoders as if the address is set four higher than it really is. This can be disabled using the Z21 maintenance tool on a computer. Newer "learning decoders" don't suffer from this at all, as the address of the decoder is set a different way". (see more on www.z21.co.uk)

Well. it's a good story, but it is NOT what actually what happens.

- It has nothing to do with "New or old decoders". Basically the software is not implemented correctly in terms of DCC standards. It was designed for non-compliant DCC Accessory decoders such as early Roco.
- The result is ANY Roco "Accessory address" set by a Z21 at default settings is not a real DCC address and so if set on a Roco Z21 system, it won't respond at that address on another brand of DCC.
- It also means that although Cobalt iP Digital, AD-2fx and AD8fx are "New" decoders with simple "Switch and learn" addressing, directly addressed features as we use with Cobalt iP Digital etc. will NOT work with a Z21 unless you use a different number - **Or... if the Z21 software has been updated, from firmware v1.21 you can tick the option box 'DCC turnout-address shift+4' on the Z21. Alternately, to change the way Z21 sets Accessory decoder addresses, use the Z21 maintenance tool on a computer system.**

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So, for those who have not updated and/or reconfigured their Z21, here's how to do it.

We have highlighted the 3 addresses specifically involved in the table below too.

- To enable "Auto Centering" on Cobalt iP Digital -for compliant DCC set it to 199. **For Z21, use 203.**
- To disable "Auto Centering" on Cobalt iP Digital -for compliant DCC set it to 198. **For Z21, use 202.**
- To "Flip the change direction" on Cobalt iP Digital -for compliant DCC set it to 197. **For Z21, use 201**

This simple table tells the rest of the addressing story.

Red numbers are what the Roco will tell you it is. The Blue numbers are what it really WILL be in DCC!

Roco Address	DCC Address	Roco Address	DCC Address	Roco Address	DCC Address	Roco Address	DCC Address	Roco Address	DCC Address	Roco Address	DCC Address	Roco Address	DCC Address
6	2	36	32	66	62	96	92	126	122	156	152	186	182
7	3	37	33	67	63	97	93	127	123	157	153	187	183
8	4	38	34	68	64	98	94	128	124	158	154	188	184
9	5	39	35	69	65	99	95	129	125	159	155	189	185
10	6	40	36	70	66	100	96	130	126	160	156	190	186
11	7	41	37	71	67	101	97	131	127	161	157	191	187
12	8	42	38	72	68	102	98	132	128	162	158	192	188
13	9	43	39	73	69	103	99	133	129	163	159	193	189
14	10	44	40	74	70	104	100	134	130	164	160	194	190
15	11	45	41	75	71	105	101	135	131	165	161	195	191
16	12	46	42	76	72	106	102	136	132	166	162	196	192
17	13	47	43	77	73	107	103	137	133	167	163	197	193
18	14	48	44	78	74	108	104	138	134	168	164	198	194
19	15	49	45	79	75	109	105	139	135	169	165	199	195
20	16	50	46	80	76	110	106	140	136	170	166	200	196
21	17	51	47	81	77	111	107	141	137	171	167	201	197
22	18	52	48	82	78	112	108	142	138	172	168	202	198
23	19	53	49	83	79	113	109	143	139	173	169	203	199
24	20	54	50	84	80	114	110	144	140	174	170	204	200
25	21	55	51	85	81	115	111	145	141	175	171	205	201
26	22	56	52	86	82	116	112	146	142	176	172	206	202
27	23	57	53	87	83	117	113	147	143	177	173	207	203
28	24	58	54	88	84	118	114	148	144	178	174	208	204
29	25	59	55	89	85	119	115	149	145	179	175	209	205
30	26	60	56	90	86	120	116	150	146	180	176	210	206
31	27	61	57	91	87	121	117	151	147	181	177	211	207
32	28	62	58	92	88	122	118	152	148	182	178	212	208
33	29	63	59	93	89	123	119	153	149	183	179	213	209
34	30	64	60	94	90	124	120	154	150	184	180	214	210

Conclusion.

We are just pleased that we can tell you about it. It's easy to assume Roco is correct and the fault is with Cobalt, when it's usually not! Full marks to Roco and the Z21 for identifying the problem and making a fix available.

The Z21 fix IS mentioned on the Z21 UK website. Go to www.z21.co.uk to learn the rest of the story...