

QUICK START AND REFERENCE GUIDE

Piko Digital Train Operations

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QUICK START AND REFERENCE GUIDE FOR PIKO DIGITAL TRAIN OPERATIONS

1. Introduction:

Welcome to the world of Piko Digital Command Control (DCC) Operation. Piko Digital operation is different from Analog control because you can control multiple locomotives, switches and other electrical devices independently from one another. Insolated “block” sections and complex wiring integral to Analog operation is non-existent with the Digital system.

2. How it works:

The Piko Digital Central Station takes electrical current from the Power Supply and sends it over the track rails. However, in addition to the current it provides to the rails to run the trains, it also sends digitally coded signals to the locomotives and to switch decoders that control the track turnouts (switches) and other devices such as signals and lights. The Central Station constantly provides approximately 20 volts of high-frequency AC power to the rails. To control and operate the Digital System, the Piko Navigator is a handheld controller with which you select an individual locomotive to run. After the address of the engine you choose to run is selected, you are placed “in the engineer’s seat” giving you control over the direction, the speed, driving lights on/off and – if a sound unit is incorporated in the engine – the bell, whistle and several other locomotive related sounds. Only the locomotive you are addressing at that time responds to these commands. All other engines on the track sit silently, waiting for their individual address to be called. With the Navigator you also have the ability to throw turnouts (switches) to the right or left by selecting the programmed address of the turnout you wish to throw. (See Section 7 of this guide.)

3. What is required:

To run the Piko Digital System, in addition to at least one locomotive equipped with a Digital Decoder (you also have the option to run an engine not equipped with a decoder, as you would run any engine on a purely Analog system), you will need the following Piko equipment:

- #35020 5 AMP Power Supply (or equivalent, according to your local electrical voltage and frequency requirements)
- #35270 Track Power Clamp
- #35021 Navigator – The handheld remote

- #35010 5 AMP Central Station – The Command Center
- #35022 Wireless Receiver (Optional for wireless “walk around control)
- #35013, 4 Channel or #35016, 1 Channel Switch or Track Decoder (Optional for control over turnouts, other switches and electrical devices)

- **CAUTION: THIS QUICK START REFERENCE GUIDE IS NOT INTENDED TO REPLACE THE INDIVIDUAL MANUALS PROVIDED WITH ALL PIKO DIGITAL SYSTEM DEVICES. ALL SAFETY INSTRUCTIONS PROVIDED IN SAID MANUALS MUST BE LEARNED AND STRICTLY ADHERED TO.**
- **CAUTION: THIS GUIDE PROVIDES ONLY FOR THE BASIC DIGITAL OPERATION AND NO CHANGES OR ALTERATIONS SHOULD BE MADE TO ANY DIGITAL DEVICE WITHOUT REFERENCING THE INDIVIDUAL DEVICE OPERATON MANUAL AND ONLY AFTER A CLEAR UNDERSTANDING OF THE PROCESS AND ITS EFFECT ON THE DEVICE HAVE BEEN CLEARLY UNDERSTOOD. OTHERWISE, SERIOUS DAMAGE MAY OCCUR.**

4. Installation: (See Diagram 2)

Central Station:

- A. The Central Station can be mounted using the 4 screw holes molded into the base plate.
- B. Connect the Power Supply to the back of the Central Station by depressing the black and white spring-terminals, inserting the black and white leads from the power supply to the black and white terminals. Releasing pressure on the terminals secures the wire.
- C. In a like manner, attach the red and blue wires from a Track Power Clamp to the corresponding terminals located next to the black and white terminals.
- D. Startup of the Central Station takes about 20 seconds. The red LED lights up and then changes to green. The left and right LEDs on the Central Station give information on the operating status. (See *Central Station Manual*)
- E. Emergency Shutdown: In an emergency (such as a short circuit or while running trains in response to an impending collision), press the red Stop button (left) on the Central Station once to shut off all power to the track. The left Red LED will blink red. While the power is off, take any necessary steps such as re-railing trains, removing obstacles from the track, etc. Press the Stop button a second time, placing the Central Station in “Standby Mode,” which will allow for the opportunity to alter the speed settings, etc. of the handheld device prior to the Emergency Stop. (For example, if trains were about to collide when you pressed the Stop button, you need to bring their throttle settings to a halt, otherwise, the trains will immediately resume the previous

speeds once the Central Station has been released from the Emergency Stop). Once desired settings have been entered in the remote, press the Stop button a third time and the LED should light Green, providing for normal operations once again. NOTE: IF THE LED REMAINS ON SOLID-RED, THE CENTRAL STATION IS OVERHEATED AND SHOULD BE ALLOWED TO COOL UNTIL THE LED BLINKS RED. You may then follow the steps above to resume operation.

Navigator Handheld Remote:

- A. The Navigator may send signals to the Central Station either wirelessly or via a tethered cable. To operate with the cable, plug the provided narrower 6-pin Digital data cable into the bottom of the remote and to the data socket located in the Central Station's rear panel between the black/white and red/blue terminals. The Navigator will switch on automatically when the system starts up.
- B. To operate wirelessly, connect the Wireless Receiver to the rear Central Station Panel, again using the 6-pin Digital data cable. Endeavor to mount the receiver some place convenient in an area equal to the center of the layout. The red LED on the Wireless Receiver lights when it is ready for wireless operation. Note: The wider 8-pin Analog data cable packed with the Wireless Receiver is not used with the Digital Central Station. REMEMBER: Add batteries to the Navigator before switching it on. Switch it on by holding the (F) button momentarily. See Diagram 2.

5. Navigator Operation:

- A. Review Diagram 1 to become familiar with the various Navigator control buttons.
- B. Switch the Navigator on by momentarily pressing the (F) key, press it for a longer period of time (1 second) to shut it off.
- C. Select (Load) a locomotive to run by pressing either the (M2) or the (0) keys. A "question mark" will appear on the screen – asking what locomotive do you wish to access – enter the locomotive address (Previously programmed in the decoder of each of your individual locomotives) using the key pad number keys. Press (M3) to indicate "O.K." The desired engine is now ready to run. NOTE: PIKO AND MOST OTHER MANUFACTURERS INITIALLY INSTALL THE FACTORY DEFAULT ADDRESS OF # 3, WHICH YOU MAY REPROGRAM WHENEVER YOU WISH (SEE "B" IN "SECTION 6" OF THIS GUIDE.)
- D. Use the round throttle in the center of the Navigator to control speed of forward and reverse locomotive movement.
- E. Use the Key Pad function keys to operate the various sound functions of those locomotives equipped with sound cards and speakers. NOTE: THE NINE (9) KEY

IS UNIVERSALLY RESERVED BY MOST DECODER MANUFACTURERS TO CONTROL THE ON/OFF OF LOCOMOTIVE LIGHTS.

6. Locomotive CV's, Addresses, and Configuration:

- A. **“CV”**: CV stands for Configuration Variable, which is the term adopted by all decoder manufacturers for a decoder's user-programmable memory location. CV's allow for the customization of individual decoder properties such as the address, momentum, throttle response, various sound assignments and volume. Once a CV as been programmed, the setting will remain permanently even after the power has been turned off. However, it can be modified as often as desired by simply reprogramming it with a new “Value.” NOTE: ALL PIKO LOCOMOTIVES ARE PRE-PROGRAMMED DIRECTLY FROM THE FACTORY SO YOU CAN BEGIN USING YOUR LOCOMOTIVE IMMEDIATELY WITHOUT HAVING TO WORRY ABOUT WHAT ADJUSTMENTS TO MAKE. THE FACTORY DEFAULT FOR EVERY LOCOMOTIVE SHIPPED IS SET FOR ADDRESS NUMBER THREE (3). When sound is installed, the locomotive's *Operation Manual* will detail what key pad numbers to press for each listed sound, i.e. whistle, bell, breaks, conductor announcement, etc.
- B. **Address**: Once you elect to have multiple locomotives on your layout, you will have to assign an address to each to avoid having several locomotives sitting on the track each with the address of three (3) waiting to receive commands.
- C. The accepted industry-adopted universal CV for locomotive addresses is CV-1. To change an address from the factory default of number 3:
- First, disconnect your layout from your Central Station and connect the Central Station to a Programming Track **OR** leave the Central Station attached to the layout, but remove all locomotives other than the one you wish reprogram. This is necessary to avoid changing the addresses of all the locomotives in addition to the one intended.
 - Next, use your Navigator to assign the address (Any number up to 10,239) You may assign any number you wish, i.e. some like to assign the actual locomotive number, or its product number, or you may simply utilize a series of sequential numbers for all your locomotives, i.e. 1 through 10, etc.)
 - From the Navigator's Main Screen, Press (M3) under “Menu,”
 - Press (M1) to scroll down to “Decoder Program”
 - Press (M2) for OK
 - Arrow is on “Loco Address”
 - Press (M2) for OK

- Arrow is on "Address", use Key Pad to enter the desired number
 - Press (M2) for OK
 - Arrow is on "Speed Steps"
 - Press (M1) to change speed from 14 to 28 (Piko locomotives are set at the Factory Default 28.) NOTE: IF THE SPEED IS SET TO 14 STEPS, SINCE THE CENTRAL STATION IS PROGRAMMED FOR 28 STEPS, THE LOCOMOTIVE LIGHTS MAY OR MAY NOT TURN ON, BUT IF THEY DO THEY WILL FLASH ON AND OFF DURING OPERATION.
 - Press (M2) for OK
 - The locomotive will "click" to acknowledge the registering of the new program and a check mark will appear next to the new number assigned on the "Address" line of the screen
 - Press (M3) to return to the Locomotive Operation Screen or press (M2) to program another engine
- D. **Configuration:** Configuration allows you to determine your locomotive's range of functions, i.e., the number of speed steps, the mode of operation (serial or parallel data processing) and the locomotive's image.
- **Press and hold (M2) to access Locomotive Configuration (It is important to know that you may skip any individual aspect of this configuration process to go directly to a specific configuration by press (M-3) at each window, thus saving the current setting as is while at the same time moving to the next)**
 - Speed Step configuration will be displayed. Use (M2) to scroll through the four choices, for Piko engines stop on 28D (The D represents DCC)
 - Press (M3) OK to confirm your selection
 - The screen now displays "Operational Data Mode." Using the (M2) key you may toggle through Parallel Transfer and Serial Transfer. See the Navigator Manual to learn the difference between these forms of transfer. For your Piko engine, select Parallel and confirm your selection with (M3)
 - Next you may configure the F-Key functions. The Momentary (factory default) setting of the F-Key functions work like a toggle switch: Press the F-Key once turns the function on, press it again turns the function off. However, with some decoders a sound function may complete itself without being manually turned off, i.e. a horn may sound once or a bell may ring six times and thus complete its function and turn off. You may override this limitation by configuring the respective F-Key for

“Continuous Operation,” which will keep the function activated as long as the key is pressed. (Note: Many but not all currently manufactured sound decoders support this momentary/continuous operation function.) You may determine the status of all F-Keys by observing the condition of the individual numbers: If the number is *highlighted in a dark box*, the key is in Continuous Mode, if the key is in a *normal background*, the key is in Momentary Mode. When configuration of the F-Keys is begun, the screen will show F-Keys 1 through 8. With the default setting all will have a *normal background*. To change any of the F-Keys, simply press the object number key once to change the screen number to the *highlighted dark box*. Pressing it again would, of course, change the screen number back to the *normal condition*. You may change one, any or all of the keys 1 through 8 and if you desire to change F-Key numbers 9 through 16, press the Function, F-Key once and the screen will change from numbers 1 through 8 to 9 through 16. And proceed as previously described. When your function keys are configured to your satisfaction, press the (M-3) to confirm the settings.

- You are now given the opportunity to select the locomotive image or Icon. You can select the appropriate locomotive symbol from those that are available using the (M1) and (M2) keys to scroll through the options. In addition, it is possible to select the locomotive image directly using the number keys. The available locomotive symbols can be found in the appendix to the *Operation Manual* in Chapter 7.
- Confirm your selection with (M3)
- The next screen allows you to name the locomotive giving it your personal preferred designation, which will be displayed below the locomotive symbol during operation. Use the (M1) and (M2) keys to move between available characters or you may select the characters by turning the throttle control left or right to display the characters. (You may select up to 10 characters) Continue selecting letters until the designation is complete.
- ONCE YOU HAVE FINALIZED YOUR CONFIGURATIONS: To permanently store the configuration, press (M2) If you wish to only save the data during the current play session, press (M3)
- For more detailed information regarding Locomotive Configuration, please read pages 12 – 15 of the *Navigator Operation Manual*.

7. Switch (Track) Decoder:

To control turnouts, switches, signals and other accessories via your Piko Digital System, you will need one or more Piko Switch Decoders. For the sake of diversity and individual application, Piko manufacturers two similar but distinctively different Switch Decoders: One can operate up to 4 turnouts, switches or other devices independently from all other locomotives and devices. The other is designed to operate but one such device. The Central Station receives commands from the Navigator handheld remote and sends those commands over the rails. Because the rails carry both the digital signal and operating power, you don't need to run wires from the Central Station to each Switch Decoder. To install Switch Decoders:

- A. For application of the single Switch Decoder, attach (plug-in) the Switch Decoder to the turnout you wish to control. For application of the 4 channel Switch Decoder, locate the Switch Decoders in the vicinity of several turnouts or other devices that you want to control.
- B. Connect the two input terminals of the Switch Decoder to some nearby track rails. To make the connection easy, use Piko 35270 Track Power Clamps. Thus, the Switch Decoder not only receives digital signals from the Central Station, but provides power to operate switches as well.
- C. From the Switch Decoder, make the wire connections to each of the 4 powered devices. Note: Each Switch Decoder's 4 outputs can supply up to 1.5 Amps of current, not to exceed a total capacity of 3.0 Amps per decoder.
- D. The Piko Switch Decoders are factory default set to operate 4, 2-wire rotary coil switch machines (such as Piko 35271 that are commonly used to operate track turnouts/switches).
- E. If you have more than 4 turnouts, switch machines or devices additional programming and configuring will be necessary and you should consult the *Operating Manual* provided with the Switch Decoder.

8. Reading CV's

Previously programmed settings for CV's in both engine and switch decoders can be reviewed. Reviewing a CV is not a programming procedure, but simply confirms the present value in any given CV. To access this function go to the Main Menu.

- Using (M1) scroll down once to "Decoder Progr." Press O.K. (M2)

- Using (M1) scroll down to "CV Reading." Press O.K. (M2), arrow is now on "CV-Nr.:" Using the key pad enter the number of the CV to be read, arrow moves to Value:
- The CV value is now automatically revealed

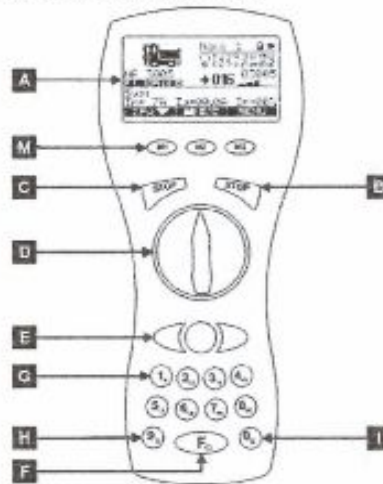
9. Support: For additional assistance or information, contact your dealer, Hunter Train Depot Sales at 760/231-1884

DIAGRAM I

PIKO Navigator

2.3 Controls

The PIKO Navigator has a variety of controls available. The function and configuration of the keys on the PIKO Navigator are depicted in this graphic overview.



No.	Description
A	Display
M	Menu keys
B	Right STOP key
C	Left STOP key
D	Throttle for Speed control (only locomotive control)
E	Control of the second function (function selectable)
G	Key pad / function keys
H	Light function key / #9 key
I	Locomotive selection key / #0 key
F	Function level selection / Switching On / Off

DIAGRAM II



Bild 1: Übersicht PIKO Digital-Anlage
 Overview PIKO Digital Layout

