Miller Industries – GS Underlift Radio Training

11-15-2022

Underlift Radio (Sub) System - 03028297

MC43 IQAN Controller
Air Bank Output Module

CAN2 Receiver
Radio Receiver Module

- Includes 03028870 antenna

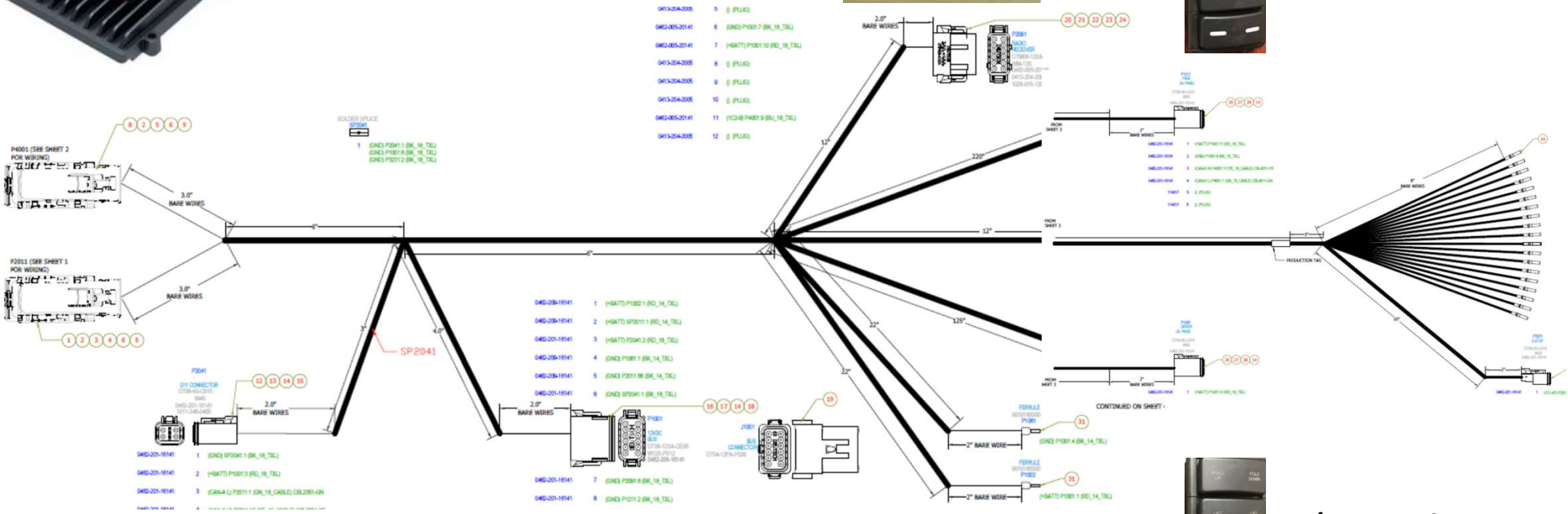
FLEXPRO8 Transmitter
Proportional Radio Transmitter

Underlift Radio (Sub) System – Harness - 03028299

MC43 Controller

CAN2 Receiver

U/L Keyapd



U/L Keyapd

G11 Modem
(Optional)

FLEXPRO 8 Transmitter - 03025152

FEATURES –

- **32 user-programmable channels –** Advanced synthesized RF controls with 32 built-in channels;
- **Over one million unique ID codes (20bit) –** Each and every Flex system has its own unique ID code; no repeats.
- **Advanced controls –** The Flex system utilizes advanced microprocessor controls with 16-bit CRC which provides ultra-fast, safe, precise, and error-free encoding and decoding.
- **Unique I-CHIP design –** The I-CHIP functions in a way that is very similar to SIM cards used on mobile phones, with the ability to transfer system information and settings from one transmitter to another without the hassle of resetting the spares.
- **Reliable push buttons –** The in-house designed push buttons are **rated for more than one million press cycles.**
- **Low power consumption –** Requires only two “AA” Alkaline batteries for more than 100 hours of operating time between replacements.
- **Ultra-durable nylon and fiberglass composite enclosures –** Highly resistant to breakage and deformation even in the most abusive environments.
- **Full compliance –** All systems are fully compliant with the FCC Part-15 Rules, European Directives (Safety, EMC, R&TTE, and Machinery), and Industry Canada Specifications (IC).

FLEXPRO 8 Transmitter

Emergency Stop Button (Push to Engage, Twist to Release)

STATUS LEDS U/L or Boom Control Mode

Center Transmitter Status LED

8 Function Push Buttons Proportional

Power Key Switch OFF/ON/SHIFT

Transmitter Information

System Channel

RX AC: Receiver Access Code (Transmitter & Receiver need to match)

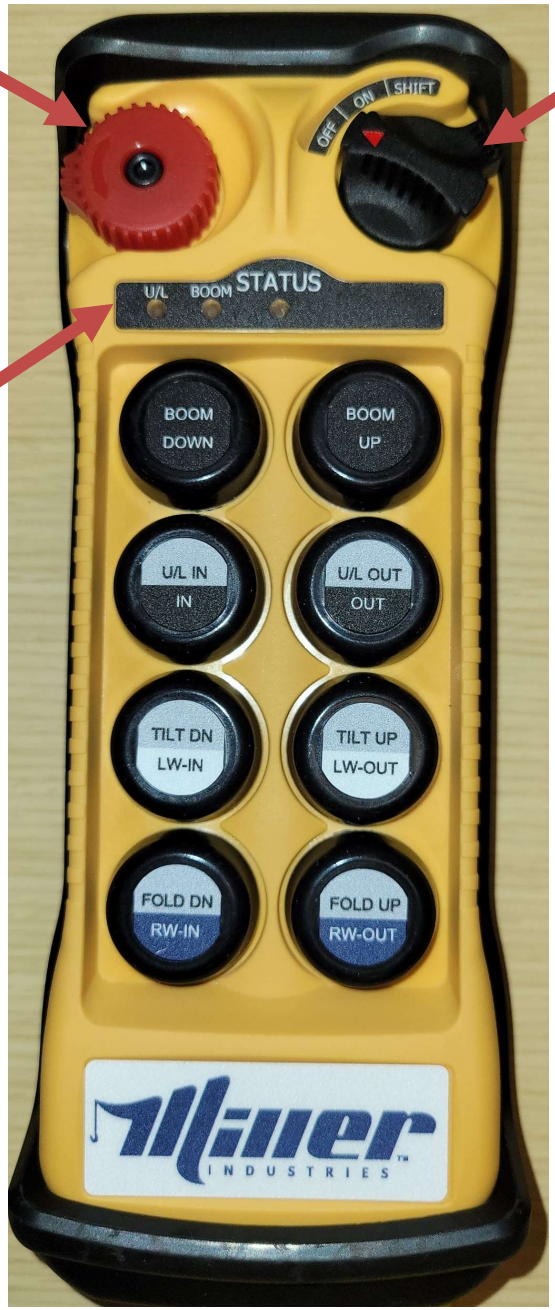
AA (x2) Battery Cover

FLEXPRO 8 Transmitter – How to Link

Emergency Stop Button (Push to Engage, Twist to Release)

STATUS LEDS U/L or Boom Control Mode

Center LED – General Transmitter Status



Power Key Switch OFF/ON/SHIFT

Make sure Emergency Stop Button is in up/released position – twist to release.

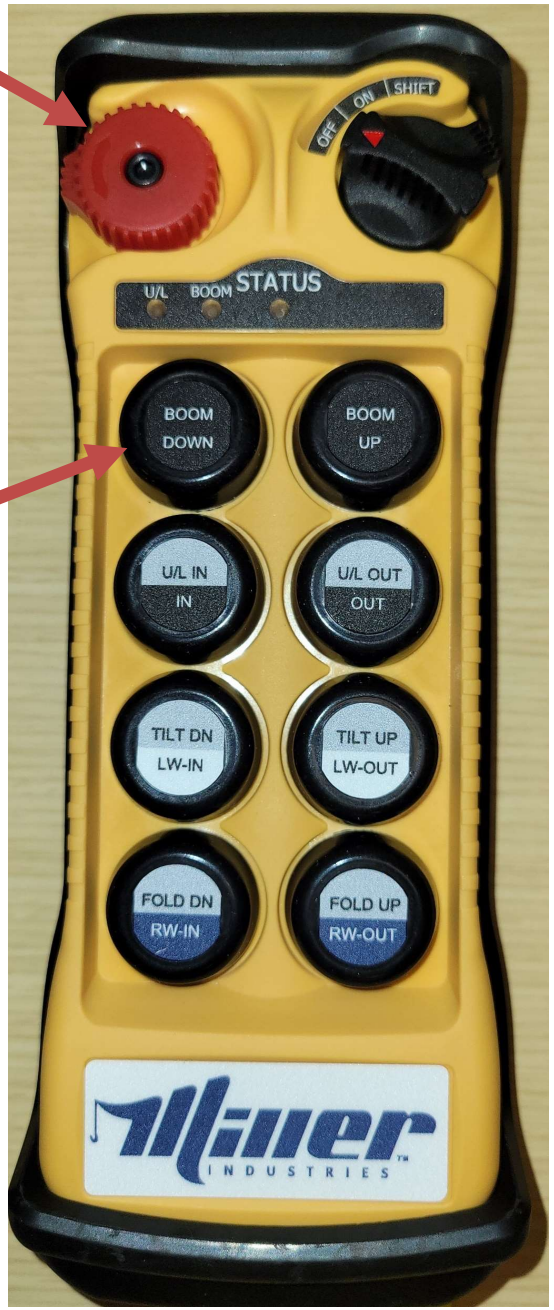
Turn Transmitter Power Key Switch to ON position
After turning on the transmitter power, check the Status LED on the transmitter handset for any sign of system irregularities.
If the system is normal the Status LED will light up green for two (2) seconds, then slowly flash green.

Then Turn and HOLD Power Key Switch to SHIFT position for 2-3 seconds. Transmitter will then link with receiver and user can release the power key switch (switch will spring back to ON position).

IMPORTANT
When operation is completed with radio transmitter, regardless if radio inactivity timeout has occurred or not, the Power Key Switch needs to be set to OFF position.
(Regardless if E-Stopped was pressed)
Otherwise, battery life will be impacted

FLEXPRO 8 Transmitter – Normal Operation

Emergency Stop Button (Push to Engage, Twist to Release)



(8) Function Buttons

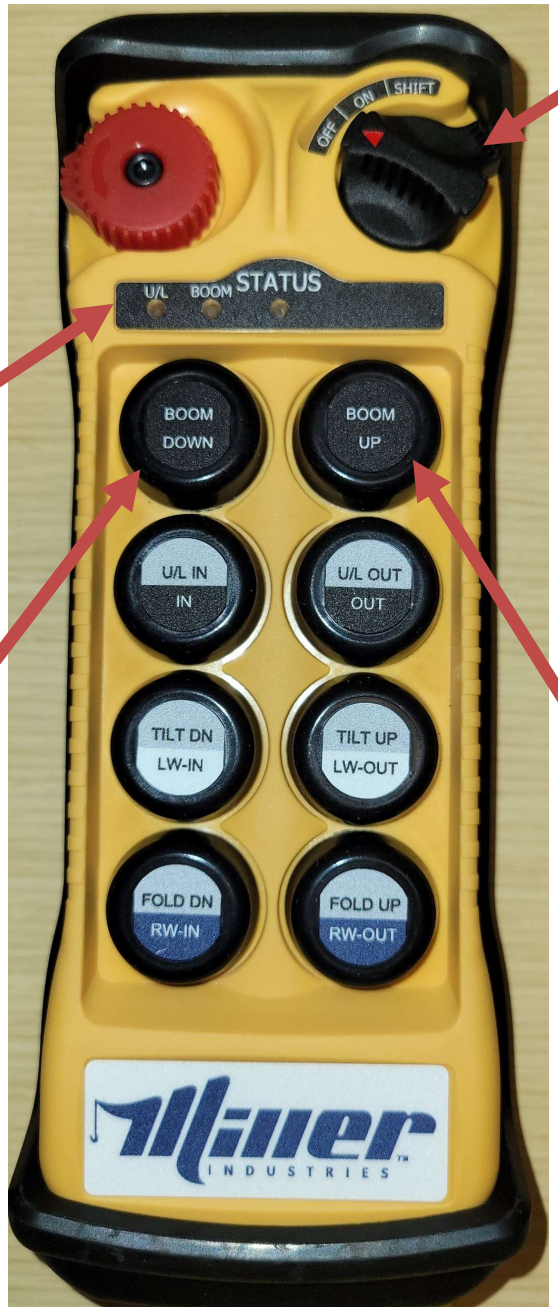
After Linking the transmitter use the 8 function buttons to operator truck functions (depending on selected Control Mode)

When a button is pressed, the Center Status LED will flash orange with a variable speed dependent on how far the button is pressed. The further a button is pressed, the faster the LED will flash. When no buttons are pressed, the Status LED will slowly blink green.

In case of an emergency, pressing down on the red emergency stop button will immediately disconnect the receiver E-Stop and turn off the unit. To reset the emergency stop button just rotate the red button either clockwise or counter-clockwise and then turn power key switch to OFF position and back ON. (Unit will need to be re-linked to operate again)

*After a 10-minute period of inactivity (function push button not pressed) the transmitter will go into low power mode and disconnect from the receiver. To reuse, the key switch must be turned “Off” and then back “On” before re-linking to use the radio again.

FLEXPRO 8 Transmitter – Shift (U/L or Boom Mode)



Power Key Switch OFF/ON/SHIFT

STATUS LEDS U/L or Boom Control Mode

Push Button 1

Push Button 2

While transmitter is ON and active/linked –
To adjust the Control mode, Turn the Power Key Switch to the Shift Position and Hold, then press push button 1 or push button 2 to change between Underlift (U/L) or Boom Functions for Transmitter function buttons. (Functions are re-mapped in the controller). Once desired control mode is selected release the Power Key Switch (switch will spring back to ON position); transmitter is then ready for use. The red LEDs, which indicate the control mode, will then change to reflect the current mode selected; confirming to the operator which mode is present.

FLEXPRO 8 Transmitter – Status Lights & Warnings

Status Display	Fault Indication
Slow green blink (Normal Operation)	Transmitter on and in standby.
Blinking orange	Button has been pressed and the unit is transmitting. The speed at which the orange LED blinks is directly related to how far down the button is pressed.
1 red blink followed by a 2-second pause	Voltage goes below 1.9V during operation - change batteries immediately.
2 red blinks followed by a 2-second pause	A push button is active while turning on the transmitter. The button that is active will be designated by the (25, 50, 75, 100) LEDs. See Push Button Fault Table.
3 red blinks followed by a 2-second pause	I-CHIP error. Consult Manufacturer
4 red blinks followed by a 2-second pause	Transmitting error, system cannot lock on to the designated channel.
Constant green for up to 2 seconds	Transmitter power on with no faults detected (prior to initiating the START function). OK to use
Solid Red	Stop command initiated with receiver ESTOP deactivated.
Solid Red	Voltage goes below 1.9V at initial power on - transmitter power shuts off.

FLEXPRO 8 Transmitter – Troubleshooting Tips

Problems	Possible Reasons	Suggestions
No Response when transmitter push button is pressed (improper startup & settings	Transmitter low battery power	Check the transmitter battery level.
	Emergency stop button activated prior to startup	Prior to turning on the transmitter power switch make sure that the red emergency stop button is elevated.
	Improper startup procedure	Redo the startup procedure by holding the power key at “START” position for up to 2.0 seconds and then release.
	Incorrect system RF channel	Make sure that the transmitter handset and the receiver unit both have the same channel.
	Incorrect Receiver Access Code	Make sure that the transmitter handset and receiver unit both have the same Receiver Access Code.
	System out of range	Make sure that the startup procedure is initiated within 100 meters (300 feet) from the receiver location.

CAN 2 Radio Receiver - 03025153

Top LED (RF) indicates receiving of RF messages

- Green Slow Blinks = Transmitter is offline
- Green Fast Blinks = Each blink is a valid RF message
- Red Solid = Error occurred; refer to Error Code LED blink code

Center LED (STATUS) indicates the CAN-2's signal strength/error codes

- Solid Green = Good RF signal strength
- Solid Yellow = Average RF signal strength
- Solid Red = Low RF signal strength
- Blinking Red = Error:
  - Red 2 Blinks = Commanded Power Down
  - Red 3 Blinks = RF Data Timeout
  - Red 4 Blinks = CAN bus Timeout
  - Red 5 Blinks = Initialization / Hardware Error
  - Red 6 Blinks = Machine Stop Power Down
  - Red 7 Blinks = Invalid RF Firmware

Bottom LED (COM) indicates received CAN data

- During normal operation, if there is CAN data currently being received on the bus this LED will light solid blue as indication that the CAN bus is connected properly

MC43 IQAN Controller/Output Module - 03028298

Status	Flash (yellow)
Normal operation	
Application not loaded	
No application available	
Waiting for restart	

Error code	Error	Primary Flash (red) Error category	Secondary Flash (yellow) Error description
1:1	Output		
1:2	Input		
1:3	VREF		
2:1	Power supply		
2:2	Temperature		
3:1	CAN, no contact		
3:2	IDtag error		
3:3	System mismatch		
3:4	CAN error (bus off)		
4:1[a]	Stopped, critical		
4:2[b]	Stopped, critical		
4:3[c]	Stopped, critical		

a. Followed by a longer sequence of flashes, contact Parker.
b. Followed by a longer sequence of flashes. Possible causes include reverse feed on startup, critical under-voltage and critical temperature.
c. Followed by a longer sequence of flashes, contact Parker.