

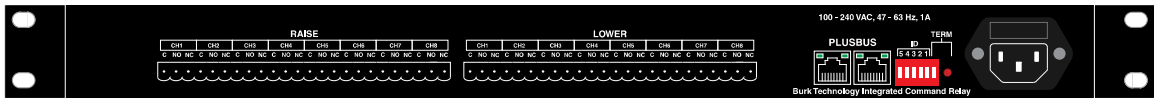
IIU / ICRU Installation Guide

Installing the IIU & ICRU

The **Integrated Input Unit (IIU)** and **Integrated Command Relay (ICRU)** are used to connect site equipment to the ARC Plus. Each IIU connects up to 16 metering and 16 status channels, and each ICRU connects 8 pairs of raise/lower relay outputs. Units are connected to the ARC Plus in daisy-chain fashion and communicate over a digital bus using Cat5 cable. Each of four PLUSBUS ports on the ARC Plus can connect to up to 31 IIUs/ICRUs in any combination, using up to 16 IIUs and 32 ICRUs system-wide, over a maximum cable run of 50' per port.



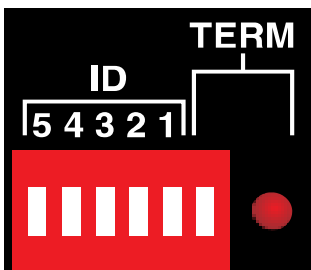
The IIU accepts 16 metering channels (left side of panel) and 16 status channels (right side of panel).



The ICRU accepts 8 raise and 8 lower channels.

Unit Identification

Prior to operation, each IIU and ICRU must be assigned a binary unit identifier using the rear panel dip switches, shown below. The dip switch settings determine the assigned channel range to each IIU and ICRU. Refer to the table on the last page of this document for the settings used for each channel range. No two IIUs can have the same identifier, and no two ICRUs can have the same identifier.



Rear panel dip switches are used to assign a binary identifier to each IIU and ICRU. The unit identifier determines the channel range for each IIU and ICRU.

After configuring the unit identifiers, set the TERM dip switch to ON for the final unit in each PLUSBUS chain. (If all four PLUSBUS ports are used, the TERM switch on four units will be set). It makes no difference whether the final unit is an IIU or an ICRU. When the units are powered, the TERM LED will illuminate for each unit identified as a terminator.

Connecting IIUs and ICRUs to the ARC Plus

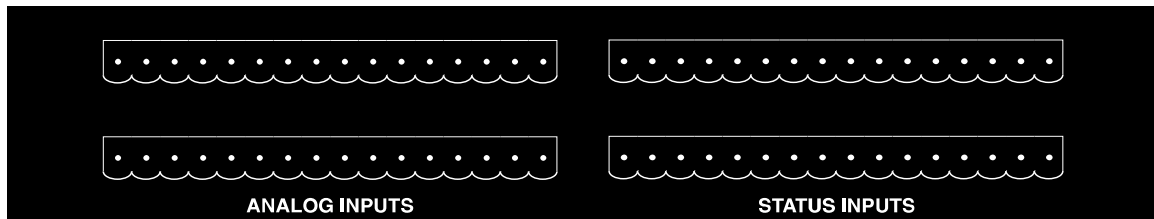
If you have not already done so, install the units in the equipment rack. If you wish, you may distribute the units in multiple racks. Next, use Cat5e cable to link a PLUSBUS port on the rear panel of the ARC Plus to a PLUSBUS port on the rear panel of the first IIU or ICRU in the daisy chain. Use another Cat5e cable to link the second PLUSBUS port of the IIU or ICRU to the next unit in the daisy-chain. Continue until all units are connected. The unit(s) identified as terminators (the TERM switch is set to ON) should be the final unit in each daisy chain.

Note: A 12" Cat5e cable is supplied with each IIU and ICRU for interconnecting units in the same rack. A longer cable length may be used, up to 50' total run per Plus Bus port, to distribute the units among multiple racks. PLUSBUS ports accept standard RJ-45 connectors and all pins are used.

Connecting Analog and Status Inputs

Input Channel Pinouts

Each IIU connects up to 16 metering inputs ($\pm 10\text{VDC}$) and 16 status inputs (0-28VDC or switch closure). Metering channels 1-8 are the top left bank of pins and 9-16 are the bottom left bank of pins row pins. Status channels 1-8 are the top right bank and 9-16 are the bottom right bank:



Each channel has a pin for common ground (left) and a pin for the signal voltage (right), as shown in the table below.

CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8
- +	- +	- +	- +	- +	- +	- +	- +
- +	- +	- +	- +	- +	- +	- +	- +
CH 9	CH 10	CH 11	CH 12	CH 13	CH 14	CH 15	CH 16

IIU Rear Panel Connector Pinouts. Analog and status pinouts are identical. Channels 17-32, 33-48, etc. are connected on subsequent IIUs in the same fashion.

Four 16-pin connector blocks are included to facilitate equipment wiring, two blocks for analog channels, and two for status channels. Analog channels are connected on the left side of the IIU rear panel, and status channels are connected on the right, as shown below.

Labeling Analog and Status Inputs

The accessory kit supplied with the IIU includes labels to identify the ground pin and supply voltage pin for each channel. To align and affix the labels:

1. Start by designating one of the 16-pin connector blocks for metering channels 1-8.
2. Orient the connector block with the set screws facing toward you and below the wiring terminals.
3. Peel off the label identifying ground and supply voltage for channels 1-8 and align the label on top of the connector block with the ground symbol above the left-most input and the CH 1 designator above the second input from the left. When the label is aligned correctly, the designator for CH 8 will be positioned above the right-most wiring input and there will be a small amount of overhang on each side of the label.
4. Wrap the overhang around the side of the connector.
5. Next, label a new connector block for metering channels 9-16, followed by the two connector blocks for status channels. On subsequent IIUs, apply labels for channels 17-32, 33-48, etc. in the same way.

Note: If you wish, you can apply the label directly on the rear panel of the IIU instead of on the connector block.

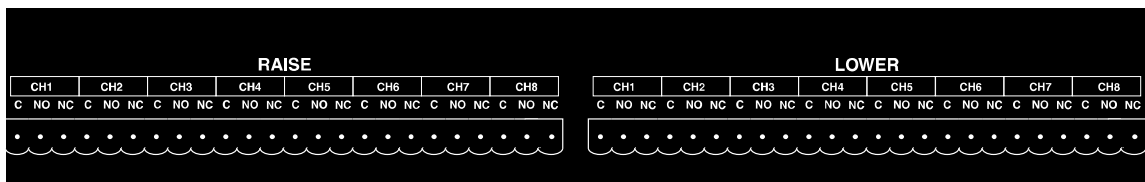
Wiring the Input Channels

Once you have labeled the connector blocks for your input channels, attach wiring for each remote control channel to the connector block using the connector labels as a guide. Secure the wiring using the built-in set screws before attaching the connector block to the appropriate rear panel connector.

Connecting Command Channels

Command Channel Connector Pinouts

The ICRU connects 8 raise and 8 lower channels using two identical 24-pin connector blocks. Raise channels connect to the left set of 24 pins on the rear panel, and lower channels connect to the right set of 24 pins, so shown below:



Closeup of Form C contacts on the ICRU rear panel.

Each channel has three pins: a pin for common (left), and pins for the normally open or normally closed contact. Pinouts for raise channels 1-8 and lower channels 1-8 are identified on the chart below. Channels 9-16, 17-24, etc. connect in the same fashion on subsequent ICRUs.

1	2	3	4	5	6	7	8
C NO NC	C NO NC	C NO NC	C NO NC	C NO NC	C NO NC	C NO NC	C NO NC

ICRU rear panel pinouts. Pinouts for raise channels (left side of ICRU rear panel) are identical to the pinouts for lower channels (right side of ICRU rear panel).

Labeling Command Channels

The accessory kit supplied with the ICRU includes labels to identify each command channel. To align and affix the labels:

1. Start by designating one of the 24-pin connector blocks for raise channels 1-8.
2. Orient the connector block with the set screws facing toward you and below the wiring terminals.
3. Peel off the label identifying channels 1-8 and align the label on top of the connector block so that the “CH 1” segment of the label corresponds with the first three pins on the left side of the connector block. “CH 2” corresponds with the next set of three pins, and so on. When the label is aligned correctly, the three pins on the far right of the connector block are identified as “CH 8” and there will be a small amount of overhang on each side of the label.
4. Wrap the overhang around the side of the connector.
5. Next, label the second connector block for lower channels 1-8. On subsequent ICRUs, apply labels for channels 9-16, 17-24, etc. in the same way.

Note: If you wish, you can apply the label directly on the rear panel of the ICRU instead of on the connector block.

Wiring Command Channels

Once you have labeled the connector blocks for your command channels, attach wiring for each channel to the connector block using the connector labels as a guide. Secure the wiring using the built-in set screws before attaching the connector block to the appropriate rear panel connector.

IIU and ICRU Dips Switch Settings

Unit ID	IIU Metering & Status Range	ICRU Command Range	DIP Switch Setting				
			5	4	3	2	1
0	1-16	1-8					
1	17-32	9-16					UP
2	33-48	17-24				UP	
3	49-64	25-32				UP	UP
4	65-80	33-40			UP		
5	81-96	41-48			UP		UP
6	97-112	49-56			UP	UP	
7	113-128	57-64			UP	UP	UP
8	129-144	65-72		UP			
9	145-160	73-80		UP			UP
10	161-176	81-88		UP		UP	
11	177-192	89-96		UP		UP	UP
12	193-208	97-104		UP	UP		
13	209-224	105-112		UP	UP		UP
14	225-240	113-120		UP	UP	UP	
15	241-256	121-128		UP	UP	UP	UP
16		129-136	UP				
17		137-144	UP				UP
18		145-152	UP			UP	
19		153-160	UP			UP	UP
20		161-168	UP		UP		
21		169-176	UP		UP		UP
22		177-184	UP		UP	UP	
23		185-192	UP		UP	UP	UP
24		193-200	UP	UP			
25		201-208	UP	UP			UP
26		209-216	UP	UP		UP	
27		217-224	UP	UP		UP	UP
28		225-232	UP	UP	UP		
29		233-240	UP	UP	UP		UP
30		241-248	UP	UP	UP	UP	
31		249-256	UP	UP	UP	UP	UP