Remote I/O

You can use remote I/O in addition to the I/O in the local base. The remote master is located in the CPU base and communicates with the remote slaves via shielded twisted-pair cable. To use a remote I/O system, you will need the following:

Remote Master

One master can be used for each channel. It can be a D2-RMSM, or the bottom port on a D2-250 CPU. (The D2-250 CPU only supports RM-NET.)

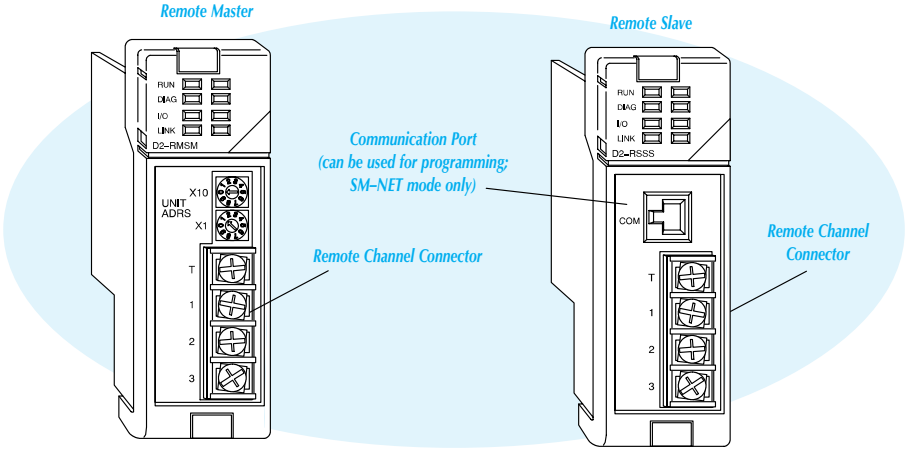
Remote Slave

A D2-RSSS and base must be used for each slave.

The remote I/O points are updated asynchronously to the CPU scan. For this reason, remote I/O applications should be limited to those that do not require the I/O points to be updated on every scan.

Remote Master Specifications		
Module Type	Intelligent device	
Number of Masters per CPU	Two maximum for D2-240 and 8 (7 + 1 CPU port) for the D2-250 (built-in master feature in D2-250 bottom port can be used as a master for RM-NET and would count as one master if used).	
Maximum Number of Channels	CPU dependent as above Channels may be split between RM-NET and SM-NET if necessary.	
Channel Capacity:	*RM-NET*	*SM-NET*
Maximum # Slaves	7	31
Baud Rates	19.2K, 38.4K baud	Selectable (19.2K, 38.4K, 153.6K, 307.2, 614.4K baud)
Transmission Distance	3,900 ft. (1.2Km)	3,900 feet (1.2Km) @ 19.2 K or 38.4K baud 1,968 feet (600m) @ 153.6K baud 984 feet (300m) @ 307.2K baud 328 feet (100m) @ 614.4K baud
Communication to Slaves	RS485 via twisted pair with shield @ 38.4K baud	
Recommended Cable	Belden 9841 or equivalent - 120 ohm impedance, 12pF/ft	
Terminal Type	Fixed	
Operating Environment	0ºC to 60ºC (32ºF to 140ºF), 5% to 95% humidity (non-condensing)	
Internal Power Consumption	200mA maximum	
Manufacturer	Koyo Electronics	

Remote Slave Specifications	
Maximum Slave Points per CPU	No remote I/O for D2-230 D2-240 and D2-250 support a maximum of 512 points per channel. However, actual I/O available is limited by available I/O points and number of local I/O being used. The D2-240 has a total of 320 X input, 320 Y outputs, and 256 control relays available to share between local and remote I/O. The D2-250 has a total of 512 X inputs, 512 Y outputs and 1024 control relays to share between local and remote I/O.
I/O Addresses Used	I/O modules in slave bases do not automatically consume any standard input and output points. You select which points are consumed by setup instructions in your RLL program.
Terminal Type	Fixed
Communications Port	RS232C, 9,600 Baud (same as top port on CPUs, SM-NET mode only)
Base Power Rqrmnt	200mA maximum
Operating Environment	0ºC to 60ºC (32ºF to 140ºF), 5% to 95% humidity (non-condensing)
Manufacturer	Koyo Electronics



I/O Configuration

The DL205 system offers local and remote I/O. Expansion I/O is not available in the DL205 system. The table below shows the number of points, bases, etc. that are available with each solution. Note that the total I/O available is the important specification.

Local I/O

With the DL205 system, you can have one base of local I/O. All local I/O points are updated on every CPU scan. There are four local base sizes (3, 4, 6, and 9 slot), each of which has a built-in power supply. The I/O count limits are merely determined by the number of available I/O slots, the I/O module point density, and the available power budget for the system.

I/O System	D2-230	D2-240	D2-250
Total I/O	128	640	1,024
Max. Input	128	320	512
Max. Output	128	320	512
Local I/O			
Max. # bases	1	1	1
Total local I/O	128	256	256
Remote I/O	No	Yes	Yes
Total # channels		2	8
Max. pts/channel		512	512
Max. bases/channels			
RM-NET[1]		7	7
SM-NET[1]		31	31
Total Remote I/O[2]		896	2048

1. Two types of Remote I/O protocol are available with the DL205 system. The D2-RMSM Remote Master and D2-RSSS Remote Slave units support both protocols.
2- Total remote I/O available is actually limited by the total I/O available. It is possible to map remote I/O into other types of memory, such as control relay points, to achieve the number of I/O shown. D2-230 does not support Remote I/O.

Remote I/O

The DL205 Remote I/O system allows you to quickly and easily locate I/O bases at a remote distance from the CPU. For many applications, this can reduce wiring costs by allowing I/O points to be located near the devices they are controlling. The chart below shows the capacity for each CPU. (The D2-250 even has the RM-NET protocol built-in on the bottom port.)

A special module called the Remote Master is placed in an I/O slot of the CPU base. Another special module called the Remote Slave is placed in the CPU slot of one or more remote bases. You can use any size DL205 base, with standard DL205 modules for the remote bases. The Remote Slaves are connected to the Master in a daisy-chain manner over a twisted pair communication cable. You can assign normal input and output addresses to the remote points by using a few simple lines of setup logic in your program.

During operation, the Remote Master polls the slaves and sends the remote I/O information to the CPU. The communication between the Remote Master and the CPU is asynchronous to the CPU scan. For this reason, Remote I/O applications should be limited to those that do not require the Remote I/O points to be updated with every scan.

Number of remote I/O

In theory, you could have up to 2048 Remote I/O points, but the D2-240 CPU only supports 320 X inputs, 320 Y outputs and 256 control relays. So you can see that only 896 points are really possible. The D2-250 has more X, Y, and C points and thus could use all 2048 points, but you could not have any local I/O.

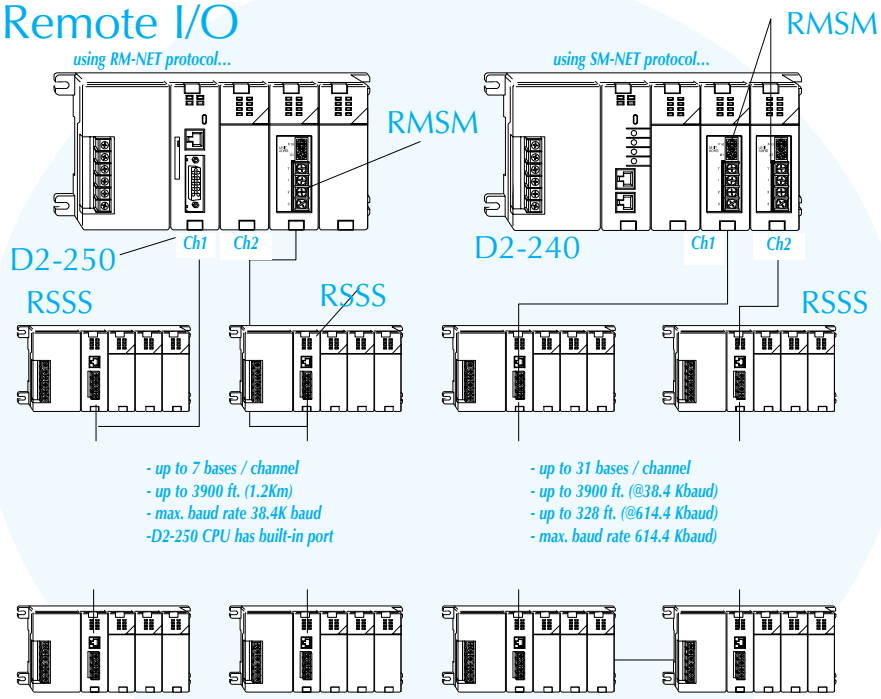
Remote bases

The number of bases supported depends on your choice of Remote I/O communications protocol, Remote Master (RM-NET) or Slice Master (SM-NET). See the illustration on the facing page.

Remote Master Protocol – allows you to connect up to 7 remote bases to a single master. The baud rate is fixed at 38.4K baud, with a total allowable distance of 3900 feet (1.2Km). This protocol is the same protocol used by the D4-RM, and the built-in ports on the D2-250, D3-350 and D4-450 CPUs.

Slice Master Protocol – allows you to connect up to 31 remote bases to a single master. The baud rate is selectable over several ranges, with a maximum baud rate of 614.4K baud. The allowable distance varies depending on the baud rate chosen. For example, at 38.4K baud, you can have a total distance of up to 328 feet (100m). This protocol is the same protocol used by the D4-SM and D4-SS units.

Remote I/O

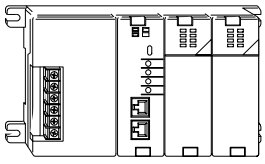


Remote Master – One master for each channel. Can be a D2-RMSM, or the bottom port on a D2-250 CPU. (The D2-250 CPU only supports RM-NET.)

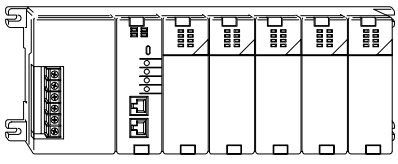
Remote Slave – Must have a D2-RSSS and base for each slave. The remote I/O points are updated asynchronously to the CPU scan. For this reason, remote I/O applications should be limited to those that do not require the I/O points to be updated on every scan.

Base Configurations

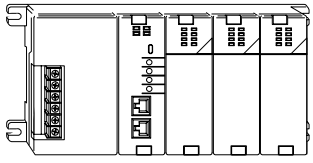
3-slot base. 64pts max.



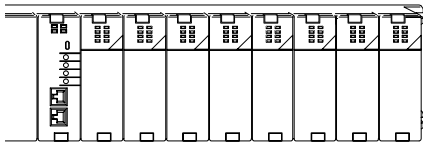
6-slot base. 160pts max.



4-slot base. 96pts max.



9-slot base. 256pts max.



Specification	AC Powered Bases	24 VDC Powered Bases	125 VDC Powered Bases
Part numbers	D2-03B, D2-04B, D2-06B, D2-09B	D2-03BDC-1, D2-04BDC-1, D2-06BDC-1, D2-09BDC-1	D2-03BDC-2, D2-04BDC-2, D2-06BDC-2, D2-09BDC-2
Voltage withstand (dielectric)	1 minute @ 1,500 VAC between primary, secondary, field ground, and run relay		
Insulation resistance	> 10M at 500 VDC		
Input voltage range	85-132 VAC (110 range) 170-264 VAC (220 range) 47-63Hz	10.2 - 28.8VDC (24VDC) with less than 10% ripple	90-264VDC (125 VDC) with less than 10% ripple 115-264 VDC (9-slot base)
Auxiliary 24 VDC output	200mA max. 300mA max. (9-slot base)	none	200mA max. 300mA max. (9-slot base)
Maximum inrush current	30A	20A < 1ms	20A
Maximum power	50 VA 80 VA (9-slot base)	15W 25W (9-slot base)	30W