Lucid+Remote Display Application Note

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A variety of remote display arrangements are possible with Lucid. These divide into two categories

LUCID to LUCID Uses a Lucid indicator as slave display
Can be interfaced to either the 'Serial' or 'Printer' ports of the Master Lucid
Uses Lucid own special communications protocol

LUCID to OTHER SERIAL DISPLAY
Subject to configuration and protocol compatibility, might be arranged from either port
Uses standard ascii transmissions

The choice of port will most usually depend on which is available. If a printer is in use the serial port can be used for the remote, whilst if the indicator is linked to a computer the printer port might be used.

The Printer port transmission can be more versatile, but may increase demand on processor time.

Connections

Using	Master Lucid	Slave Lucid	Other Serial Display
Serial Port	RS232 TX (transmit)	RS232 RX	RECEIVE DATA
	RS232 RX (receive)	RS232 TX	-
	GND (ground)	GND	COMMS GROUND
Printer Port	PRN TX (transmit)	RS232 RX	RECEIVE DATA
	-	-	-
	GND (ground)	GND	COMMS GROUND

Configuration

Lucid to Lucid Configuration –

Using Lucid	Master Lucid		Slave Lucid
Serial Port	SErIAL bAUd	=	SErIAL bAUd
	SErIAL PrtY	=	SErIAL PrtY
	SErIAL rEdS 10		SErIAL rEdS 80
Printer Port	Pr_CF9 bAUd	=	SErIAL bAUd
	Pr_CF9 PrtY	=	SErIAL PrtY
	SErIAL rEdS 20		SErIAL rEdS 80

(Always connect to the serial port on the slave Lucid)

Lucid to other serial displays –

In these cases, there is often no specific set up as both the Lucid and remote may be configurable. Once a string is created from the Lucid, the remote may also need settings altered to suit.

Using	Lucid Parameters			Example 1	Example 2
Serial Port	SErIAL SInG 0	Sets continuous transmission on serial port		London Electronics Remote settings bAUd 48 CnFG 8 LoSE 2 dISP 6 Cr =0d	J S Systems Set Lucid SErIAL CtrL = 0 00 02 13
	SErIAL rEdS 00	Remote will use standard serial transmission			
	Interface Options				
	SErIAL bAUd	Sets Baud rate, default 04=4800			
	SErIAL PrtY	Sets Parity, default 00=8 Data, No Parity			
	String Options				
	SErIAL CrLF	Line Terminator, default 1 = CrLf			
	SErIAL CtrL	Adds Hex Prefix characters			
	SErIAL noSt	Status bytes, default 0 = included			
Printer Port	SErIAL SInG 1	Turns off continuous on serial port		London Electronics CnFG 8	J S Systems
	SErIAL rEdS 01	Sets continuous output on printer port of the current 'print format'			
	Recommended settings for simple weight transmission				
	Pr_For PFor	9000000	Weight terminated with Cr XXXXXXkg<Cr>	LoSE 2 dISP 6 Cr =0d	
	Pr_For PCr	1000000			
	Pr_For CtrL	0 00 00 EF			
	Pr_CFG nEGP	1			
	Pr_For PFor	9000000	Weight Framed by STX/ETX <STX>XXXXXXkg<ETX>	LoSE 2 dISP 6 Cr =03	Remote setting Add= 00
	Pr_For PCr	0000000			
	Pr_For CtrL	0 00 02 EF			
	Pr_For CtrF	0 00 00 03			
	Pr_CFG nEGP	1			
	Interface Options			bAUd 24	
	Pr_CFG bAUd	Sets Baud rate, default 02=2400			
	Pr_CFG PrtY	Sets Parity, default 00 = 8 Data, No Parity			
	Other String Options				
	Pr_CFG CrLF	Line Terminator, default 0 = Cr			
	Pr_CFG HdSH	Default 1 : 0 adds a status byte			
	Pr_CFG nEGP	Default 0 : 1 floats –ve sign before weight			
	Pr_For CtrL	Leading Hex Chrs			
	Pr_For CtrF	Trailing Hex Chrs			
	Settings to create previous default transmission (suits MTL display)				
	Pr_CFG bAUd	09 = 9600			
	Pr_CFG CrLF	1 = CrLf			
	Pr_For PFor	9020000			
	Pr_For P SP	0200000			
	Pr_For PCr	0110000			
	Pr_For CtrL	2 02 1B 4C			
	Pr_For CtrF	0 00 00 03			

Notes, Tips and Other Technical Information

From version NO6.00E, setting rEdS = 01 creates continuous transmission of the current print format at the current protocol. Previous versions would automatically default the transmission to a format and protocol designed to suit an MTL Hazardous area display. The same transmission can still be created by manually configuring the print format (see table above).

The contents of the transmission can be tailored using the Print Formatting parameters in a similar way to that which is applied for Printing. This could lead to the creation of extremely long transmission strings, which should be avoided. Care should be taken to keep strings as short as possible, by only including essential data. Where possible use the recommended examples.

Continuous serial transmission uses a considerable amount of processing time. To avoid excessive loading, especially in demanding applications such as high speed filling –

- Keep transmission string lengths as short as possible
- Do not use fast update speeds (never use UPdt 00 or 02)
- Use higher baud rates (But note lower baud rates may allow longer cable lengths)
- Avoid continuous transmission from both ports

When SErIAL rEdS is set to 01, various effects are applied and the use of some functions modified –

- A weight item, e.g. 9, in the print format file will be constructed of

  5 bytes labelname i.e. Gross or Net_ _
  1 Status byte i.e. U/O/– or space
  6 bytes weight (7 if decimal place included)
  2 bytes units i.e. kg (but changes to Asterisk & Space while in motion)

- The **labelname** can be suppressed by setting EF as the least significant digits of PrFor CtrL

- The **Units** can be suppressed by setting ConFIG UnIt to 00 (No longer changes when in motion)

- Setting PrCFG nEGP to 1 will remove the status byte and, if negative, the – sign will 'float' in front of the most significant weight digit

- A **Special Status Byte** can be appended to the weight by setting PrCFG HdSH to 0

Bit	7	6	5	4	3	2	1	0
	Always set	Net	Gross	Motion	Zero	Underange	Overrange	Negative

  In this case the units, if present, will not change when in motion

- Setting EF as the least significant digits of PrFor CtrF will provide a **Check Character** – Exclusive Or on all characters after the CtrL string but including any characters in the CtrF string.

- Remote display strings transmitted from the printer port will be truncated at 19 characters per line, following any non-printable characters.

- Do not use SOH (Hex 01) character in strings. Any SOH will be redirected to the serial port (feature removed at NO6.00J).