

DATEL 48K SERVICE

Installation of Datel Modems Nos. 8A and 9A at Customer's Premises

(This is a NEW Instruction)

1 INTRODUCTION This instruction details the installation in a customer's premises of the necessary equipment for the provision of a Datel 48K Service using table-mounted Modems 8A (and 9A). For installation of rack-mounted Modems 8B and 9B see I8450.

A long-distance Datel 48K circuit employs two separate signal-conversion processes. A Datel Modem No. 8A, installed at the customer's premises, codes the data signals into a form, known as baseband, suitable for transmission over a local line to a repeater station, where a Datel Modem No. 9B translates the baseband signals into the 60-104 kHz portion of the 60-108 kHz group band. The remaining 4 kHz is available for a co-ordination speech channel, which is extended at audio frequency, over a separate local circuit, to the customer's premises.

The combined speech and data channels are routed to the distant repeater station over a group link. At the distant end further Datel Modems 9B and 8A complete the local circuit to the customer.

In certain cases, the group link is extended to the customer's premises, where both Modems 8A and 9A are installed. In this case the main link may be used alternatively for data or 12-channel telephony.

Local Datel 48K circuits can be provided by direct baseband transmission between two Modems 8A, no group link being used.

2 AUTHORITY Given by Datel Service Code quoted on Advice Note.

3 DESCRIPTION OF MODEMS NO. 8 AND NO. 9 See A8 F3015.

4 DESCRIPTION OF SERVICE See A8 F3011.

5 DATEL SERVICE CODES See I6020.

6 EQUIPMENT REQUIRED See I6025.

7 ACCOMMODATION Before commencing installation, check that the following accommodation requirements are met (further details of accommodation are given in I1000):

Location: Suitable locations for the equipment should be agreed with the customer. High-grade circuit precautions should be observed for both data and speech circuits in accordance with C3 R2025.

Position of Modems: Not more than 1.5 m (5 ft) above floor level (normally table height), and it must be possible to change an individual unit or the complete modem without removing or requiring access to any non-Post Office apparatus other than the customer's power socket-outlet.

Ventilation:	Air must be able to circulate freely at room temperature on all sides of the modem.
Safety:	No change in floor level within 1 m of the modems and a minimum clear height above this area of 2 m, and no other object in this area that would hinder PO Staff or render maintenance activity unsafe.
Customer Access:	In the event of a fault, the customer must have easy access to the test switches and interchange-circuit plug at the rear of the Modem No. 8A.
Testing and Maintenance Access:	There must be direct access to the modems and adequate clearance for testing and maintenance.
Accidental Damage:	There must be minimal risk of damage to the modems through excess sunlight, condensation etc.
Connection of other Equipment:	Ensure that Datel Terminal Equipment which customers propose to use in connection with the modems is included in the "List of Privately Owned Equipment for which permission has been granted for Connexion to Post Office Telecommunications Services" held by GM(s).
Mains Supply:	The customer must provide a switched a.c. mains socket-outlet of 5A or 13A fusing capacity per modem and for use exclusively with the modem, and must connect it to a 230-240 V 50 Hz mains supply and an efficient connection to a protective earth.

8 WIRING AND CABLING Cabling to the modems is shown in Diagram DTW(L) 1023. For group band and data baseband circuits between Modems 8A and 9A or between modems and the external cable entry screened cables should be provided as indicated in the diagram, but the audio part of the speech co-ordination circuit may make use of internal block wiring where available.

9 INSTALLATION Install to Diagram DTW(L) 1023 and then carry out the following operations in the order shown:

(i) With the aid of an earth tester (see A2 E1006) check the customer's mains socket(s) is correctly wired and that an efficient protective earth is connected to it.

(ii) Terminate the modem mains cord on a suitable 3-pin plug provided by the Post Office.

(iii) If the plug is fused, insert a 3A fuse.

(iv) Check that the modem mains transformer connections are correct for the supply.

(v) Connect mains supply.

10 TESTING In-station tests are carried out in accordance with I6032. It may be found advantageous to carry out these tests at a suitable repeater station prior to delivery at the customer's premises, a final test being made upon installation.

(NOTE: these tests are performed before the customer's equipment is connected to the Modem No. 8A).

11 MODEM NO. 8A ADDITIONAL INTERNAL CONNECTIONS After the In-Station tests have been completed the strapping instructions detailed in Table 1 should be followed.

TABLE 1

Datel Service Code	Unit	Circuit Board No. (NOTE)	Link/Family	Strapping	Remarks
48.0././..	Coder No. 3A	R60308	LK1	48	Transmission at the fixed speed of 48 kbit/s
		"	LK2	48	
		R60320	LK1	48	
		"	LK2	48	
		"	LK3	48	
	"	LK4	48		
Decoder No. 3A	R60322	Speed Select	48 kHz		
Decoder No. 3B	R60522	Speed Select	48 kHz		
48.1././..	Coder No. 3A	R60308	LK1	40.8	Transmission at the fixed speed of 40.8 kbit/s
		"	LK2	40.8	
		R60320	LK1	40.8	
		"	LK2	40.8	
		"	LK3	40.8	
	"	LK4	40.8		
Decoder No. 3A	R60322	Speed Select	40.8 kHz		
Decoder No. 3B	R60522	Speed Select	40.8 kHz		
48.2././..	Coder No. 3A	R60308	LK1	50	Transmission at the fixed speed of 50 kbit/s
		"	LK2	50	
		R60320	LK1	50	
		"	LK2	50	
		"	LK3	50	
	"	LK4	50		
Decoder No. 3A	R60322	Speed Select	50 kHz		
Decoder No. 3B	R60522	Speed Select	50 kHz		
48..././1.	Coder No. 3A Chassis Socket SKB	-	TCC	5-6	Signal Element Timing from modem
48..././2.	Coder No. 3A Chassis Socket SKB	-	TCC	6-8	Signal Element Timing from the DTE

TABLE 1 (Cont'd)

Datel Service Code	Unit	Circuit Board No. (NOTE)	Link/Facility	Strapping	Remarks
48..././3.	Coder No. 3A Chassis Socket SKB	-	TCC	6-7	Signal Element Timing at Customer's Control
48..././1	Decoder No. 3A and No. 3B	R60309	Data Inhibit.	Insert Strap	Received Data cct clamped to Binary 1 in the absence of line signals
48..././2	Decoder No. 3A and No. 3B	R60309	Data Inhibit	Remove Strap	All signals present at line terminals inc noise appear at Received Data cct

NOTE: Individual printed-circuit boards upon which strapping is required are identified in this instruction by the 'R' number (eg R60308). This number is the printed circuit master and is marked on the wiring side of the circuit board.

12 CONNECTIONS TO CUSTOMER'S EQUIPMENT It is the customer's responsibility to ensure that a suitable cable is provided for the circuits inter-connecting the data terminal equipment and the Post Office Modem No. 8A, and that it is terminated on the 34-way plug (ETHER type MRAC 34P GN HD VC - now made by PYE LTD).

Interchange circuits are terminated on the connector-plug pins as specified in Table 2.

TABLE 2

INTERCHANGE CIRCUIT	PIN IDENTIFICATION
Protective Earth (Note)	A
Signal Earth or Common Return	B
Transmitted Data 'A'	P
'B'	S
Received Data 'A'	R
'B'	T
Request to Send	C
Ready for Sending	D
Data Set Ready	E
Transmitter Clock Control	g
Alternate Use Transmit (Note)	h
Data Channel Received Line Signal Detector	F
Alternate Use Receive (Note)	j

