

# Gandalf Data Interface Converters

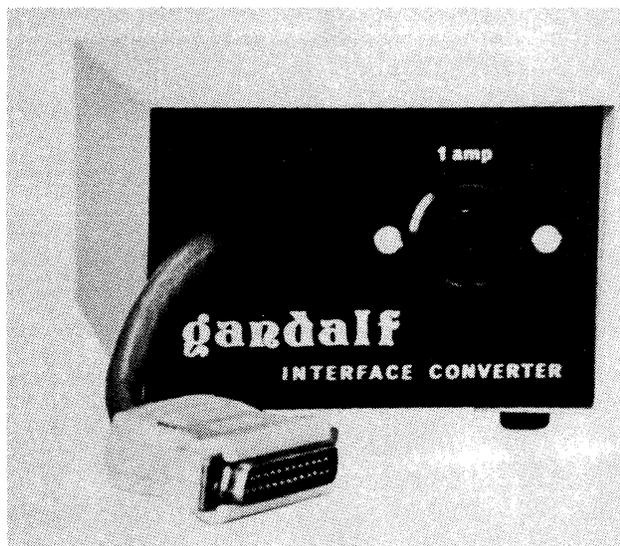
## MANAGEMENT SUMMARY

**UPDATE:** *Gandalf sources have reviewed this report for timeliness and accuracy and have told us that no changes or additions are necessary.*

Gandalf Data, Inc. offers a broad line of interface converters, as well as multiplexers, line drivers, and protocol converters. The Gandalf IFC 200 interface converter series consists of nine models that create a compatibility between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE). Each converter has a different set of interface specifications. All are equipped with self-contained power supplies and mount on a desktop.

Most of the models conform to the RS-232-C specifications outlined by the Electronic Industries Association (EIA). RS-232-C, the most widely adopted interface standard in the United States, describes physical and electrical parameters for connections at speeds up to 20,000 bps. Models IFC 201, 202, 203, and 204 provide interfacing between RS-232-C and RS-422 or RS-423 connections. EIA RS-423, a version of the EIA RS-449 specification, is functionally, but not physically, compatible with RS-232-C. For higher transmission rates, the RS-422 version of the RS-449 interface specification has the ability to transmit at up to 2M bps. RS-449 specifies connector type, pin assignments, and other physical characteristics, and references RS-422, balanced, and RS-423, unbalanced, for detailed electrical specifications.

IFC Models 207, 208, and 209 provide RS-232-C to AT&T 300 interfacing. These converters are used with the AT&T Series 300 data sets, which support high-speed transmis-



*The IFC 200 Interface Converter series was introduced by Gandalf five years ago. All models are available in the one standard size shown above. Prices have not risen since last year's report.*

Gandalf's line of interface converters currently contains nine standalone, self-powered units that provide compatibility between DTE and DCE.

**MODELS:** IFC 201, 202, 203, 204, 205, 206, 207, 208, and 209.

**CONVERSION:** IFC 201, 202, 203, and 204—RS-232-C to RS-422 or RS-423 connection; IFC 205 and 206—RS-232-C to CCITT V.35; IFC 207 and 208—AT&T 300 to RS-232-C; IFC 209—AT&T 300 to CCITT V.35.

**TRANSMISSION RATES:** According to the connected DTE or DCE.

**COMPETITION:** Avanti Communications Corporation, Teleprocessing Products, Inc.

**PRICE:** Ranges from \$400 to \$650.

## CHARACTERISTICS

**VENDOR:** Gandalf Data, Inc., 1019 South Noel Avenue, Wheeling, Illinois 60090. Telephone (312) 541-6060. In Canada: Gandalf Data, Ltd., 9 Slack Road, Ottawa, Ontario K2G 0B7. Telephone (613) 225-0565.

**DATE OF ANNOUNCEMENT:** January 1982.

**DATE OF FIRST DELIVERY:** April 1982.

**NUMBER DELIVERED TO DATE:** Information not available.

**SERVICED BY:** Gandalf Data.

## MODELS

The Gandalf IFC Series converters operate with Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) as follows:

Model No.	DTE Interface	DCE Interface
IFC 201	RS-423	RS-232-C
IFC 202	RS-422	RS-232-C
IFC 203	RS-232-C	RS-423
IFC 204	RS-232-C	RS-422
IFC 205	CCITT V.35	RS-232-C
IFC 206	RS-232-C	CCITT V.35
IFC 207	AT&T 300	RS-232-C
IFC 208	RS-232-C	AT&T 300
IFC 209	AT&T 300	CCITT V.35

## CONFIGURATION

The converters covered in this report are standalone devices that are placed between the DTE and the DCE. Each device has the appropriate cable and connectors to accommodate the interfaces. There are no indicators, controls, or adjustments. All converters have a one-ampere convenience outlet that can be used to power the modem.

## Gandalf Data Interface Converters

➤ sion. IFC Models 205, 206, and 209 provide RS-232-C to CCITT V.35 interfacing, which is used for high-speed (48K bps) communications over international wideband channels. CCITT V.35 is a subset of the CCITT V.24 modem interface specification. CCITT V.24, a widely adopted international interface recommendation, is largely compatible with RS-232-C.

### COMPETITIVE POSITION

Gandalf's competitors include Avanti Communications, DCC/Duracom, Remark Datacom, and Teleprocessing Products, Inc. Avanti, Gandalf's major competitor in the interface converter market, manufactures seven types of interface converters, including the Model 100 RS-232-C to V.35 unit and the Model 170 V.35 to RS-232-C converter. Teleprocessing Products offers two interface converters, one for RS-232-C to V.35 conversion, and another for RS-232-C to AT&T 303 conversion. DCC/Duracom specializes in RS-232-C to 20/60 ma conversion, while Remark Datacom offers RS-232-C to current loop conversion. Gandalf and Avanti are the leading vendors of interface converters, which are also sold as a commodity item through various data equipment catalogs.

### ADVANTAGES AND RESTRICTIONS

Installation of all of the IFC units is simple: they connect to the modem through a front-panel cable/connector and to the terminal through a rear-panel receptacle. Once powered, they will operate unattended. The units perform required voltage and impedance transformations, but are fully transparent to data and other signals. Gandalf offers a range of devices to suit any application; all of the models conform to the appropriate EIA specifications and CCITT and Federal requirements. □

### ▶ DEVICE CONTROL

The converters operate automatically once the power is turned on. Data and control signals are applied, converted, and passed to the appropriate pin of the connector at the interface.

Model IFC 201 provides conversion between an RS-232-C modem interface (DCE) and an RS-423 (unbalanced) business machine interface (DTE). The unit comes with a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

The IFC 202 provides conversion between an RS-232-C modem interface and an RS-422 (balanced) business machine interface. The unit has a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

Model IFC 203 provides conversion between an RS-423 modem interface and an RS-232-C business machine interface. This converter comes with a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 204 provides conversion between an RS-422 modem interface and an RS-232-C business machine inter-

face. The unit has a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 205 provides conversion between an RS-232-C modem interface and a V.35 business machine interface. This converter has a five-foot long cable terminated with a DB25P connector for the modem connection and a rear-panel mounted MRAC 34SJ connector for the business machine connection.

Model IFC 206 provides conversion between a V.35 modem interface and an RS-232-C business machine interface. The unit comes with a five-foot cable terminated with MRAC 34PJTC connector for the modem and a 48-inch cable terminated with a DB25S connector for the business machine.

Model IFC 207 provides conversion between an RS-232-C modem interface and a Series 300 business machine interface. The unit contains a 12-pin Burndy connector to interface with the Series 300 business machine cable. The IFC has a five-foot cable terminated with a DB25P connector to plug into the modem.

Model IFC 208 provides conversion between a Series 300 modem interface and an RS-232-C business machine interface. This converter supplies a five-foot cable terminated with a DB25S connector to mate with the cable coming from the business machine. A four-foot long cable (containing nine coaxial cables) terminated with a 12-pin Burndy connector is provided to interface with the 300 Series modem.

Model IFC 209 provides conversion between a V.35 modem interface and a Series 300 business machine interface. The unit supplies a five-foot long cable terminated with an MRAC 34PJTC connector for the modem, and a 12-pin Burndy connector for interfacing with a Series 300 cable.

### PHYSICAL SPECIFICATIONS

All members of the Gandalf interface converter family measure 8½ inches by 4½ inches by 3¼ inches, and weigh approximately three pounds. Each model has a six-foot power cord with a standard three-pin grounding plug. The units operate on 155 VAC 60 Hz power and draw approximately five watts.

### PRICING

All Gandalf interface converters are available for purchase only. Each comes with a standard one-year warranty.

### EQUIPMENT PRICES

	Purchase Price (\$)
IFC 201	425
IFC 202	425
IFC 203	425
IFC 204	425
IFC 205	425
IFC 206	425
IFC 207	400
IFC 208	400
IFC 209	650 ■

# Gandalf Data, Inc. Interface Converters



## MANAGEMENT SUMMARY

**UPDATE:** *The vendor has reviewed this report for timeliness and accuracy and has told us that no changes or additions are necessary.*

In addition to its line of protocol converters, multiplexers, and line drivers, Gandalf offers a broad line of interface converters. The Gandalf Data, Inc. IFC 200 interface converter series consists of nine models that create a compatibility between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE). Each of the converters has a different set of interface specifications. They are all equipped with self-contained power supplies and mount on a desktop.

Most of the models conform to the RS-232-C specifications outlined by the Electronic Industries Association (EIA). RS-232-C, the most widely adopted interface standard in the United States, describes physical and electrical parameters for connections at speeds up to 20,000 bps. Models IFC 201, 202, 203, and 204 provide interfacing between RS-232-C and RS-422 or RS-423 connections. EIA RS-423, a version of the EIA RS-449 specification, is functionally, but not physically, compatible with RS-232-C. For higher transmission rates, the RS-422 version of the RS-449 interface specification has the ability to transmit at up to 2M bps. RS-449 specifies connector type, pin assignments, and other physical characteristics, and references RS-422, balanced, and RS-423, unbalanced, for detailed electrical specifications. For more information on RS-449, see Report C07-407-201 in Volume 1.

IFC Models 207, 208, and 209 provide RS-232-C to AT&T 300 interfacing. These converters are used with the AT&T Series 300 data sets, which support high-speed transmission. IFC Models 205, 206, and 209 provide RS-232-C to CCITT V.35 interfacing, which is used for high-speed (48K bps) communications over international wideband channels. CCITT V.35 is a subset of the CCITT V.24 modem

Gandalf's interface converters include nine standalone, self-powered interface units that provide compatibility between DTE and DCE.

**MODELS:** IFC 201, 202, 203, 204, 205, 206, 207, 208, and 209.

**CONVERSION:** IFC 201, 202, 203, and 204—RS-232-C to RS-422 or RS-423 connection; IFC 205 and 206—RS-232-C to CCITT V.35; IFC 207 and 208—AT&T 300 to RS-232-C; IFC 209—AT&T 300 to CCITT V.35.

**TRANSMISSION RATES:** According to the connected DTE or DCE.

**COMPETITION:** Avanti Communications Corporation, Teleprocessing Products, Inc.

**PRICE:** Ranges from \$400 to \$650.

## CHARACTERISTICS

**VENDOR:** Gandalf Data, Inc., 1019 South Noel Avenue, Wheeling, Illinois 60090. Telephone (312) 541-6060. In Canada: Gandalf Data, Ltd., 9 Slack Road, Ottawa, Ontario K2G 0B7. Telephone (613) 225-0565.

**DATE OF ANNOUNCEMENT:** January 1982.

**DATE OF FIRST DELIVERY:** April 1982.

**NUMBER DELIVERED TO DATE:** Information not available.

**SERVICED BY:** Gandalf Data.

## MODELS

The Gandalf IFC Series converters operate with Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) as follows:

Model No.	DTE Interface	DCE Interface
IFC 201	RS-423	RS-232-C
IFC 202	RS-422	RS-232-C
IFC 203	RS-232-C	RS-423
IFC 204	RS-232-C	RS-422
IFC 205	CCITT V.35	RS-232-C
IFC 206	RS-232-C	CCITT V.35
IFC 207	AT&T 300	RS-232-C
IFC 208	RS-232-C	AT&T 300
IFC 209	AT&T 300	CCITT V.35

## CONFIGURATION

Each converter is a standalone device that is placed between the DTE and the DCE. Each device has the appropriate cable and connectors to accommodate the interfaces. There are no controls, indicators, or adjustments. Each converter has a one-ampere convenience outlet that can be used to power the modem.

## Gandalf Data, Inc. Interface Converters

▷ interface specification. CCITT V.24, a widely adopted international interface recommendation, is largely compatible with RS-232-C.

### COMPETITIVE POSITION

Gandalf's competitors include Avanti Communications, DCC/Duracom, Remark Datacom, and Teleprocessing Products, Inc. Avanti, Gandalf's major competitor in the interface converter market, manufactures seven types of interface converters, including the Model 100 RS-232-C to V.35 unit and the Model 170 V.35 to RS-232-C converter. Teleprocessing Products offers two interface converters, one for RS-232-C to V.35 conversion, and another for RS-232-C to AT&T 303 conversion. DCC/Duracom specializes in RS-232-C to 20/60 ma conversion, while Remark Datacom offers RS-232-C to current loop conversion. Gandalf and Avanti are the leading vendors of interface converters, which are also sold as a commodity item through various data equipment catalogs.

### ADVANTAGES AND RESTRICTIONS

Installation of all of the IFC units is simple: they connect to the modem through a front-panel cable/connector and to the terminal through a rear-panel receptacle. Once powered, they will operate unattended. The units perform required voltage and impedance transformations, but are fully transparent to data and other signals. Gandalf offers a range of devices to suit any application; all of the models conform to the appropriate EIA specifications and CCITT and Federal requirements.

### USER REACTION

Gandalf did not provide a list of users for these products; therefore, we could not survey user reaction. □

### ▶ DEVICE CONTROL

Once power is applied, operation of the converters is automatic. Data and control signals are applied, converted, and passed to the appropriate pin of the connector at the interface.

Model IFC 201 provides conversion between an RS-232-C modem interface (DCE) and an RS-423 (unbalanced) business machine interface (DTE). The unit comes with a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

The IFC 202 provides conversion between an RS-232-C modem interface and an RS-422 (balanced) business machine interface. The unit has a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

Model IFC 203 provides conversion between an RS-423 modem interface and an RS-232-C business machine interface. The unit comes with a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 204 provides conversion between an RS-422 modem interface and an RS-232-C business machine interface. The unit has a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 205 provides conversion between an RS-232-C modem interface and a V.35 business machine interface. The unit has a five-foot long cable terminated with a DB25P connector for the modem connection and a rear-panel mounted MRAC 34SJ connector for the business machine connection.

Model IFC 206 provides conversion between a V.35 modem interface and an RS-232-C business machine interface. The unit comes with a five-foot cable terminated with MRAC 34PJTCH connector for the modem and a 48-inch cable terminated with a DB25S connector for the business machine.

Model IFC 207 provides conversion between an RS-232-C modem interface and a Series 300 business machine interface. The unit contains a 12-pin Burndy connector to interface with the Series 300 business machine cable. The IFC has a five-foot cable terminated with a DB25P connector to plug into the modem.

Model IFC 208 provides conversion between a Series 300 modem interface and an RS-232-C business machine interface. The unit supplies a five-foot cable terminated with a DB25S connector to mate with the cable coming from the business machine. A four-foot long cable (containing nine coaxial cables) terminated with a 12-pin Burndy connector is provided to interface with the 300 Series modem.

Model IFC 209 provides conversion between a V.35 modem interface and a Series 300 business machine interface, the unit supplies a five-foot long cable terminated with an MRAC 34PJTCH connector for the modem, and a 12-pin Burndy connector for interfacing with a Series 300 cable.

### PHYSICAL SPECIFICATIONS

All members of the Gandalf interface converter family have the same dimensions and weight. The units measure 8½ inches by 4½ inches by 3¼ inches, and weigh approximately three pounds. All models have a six-foot power cord with a standard three-pin grounding plug. The units operate on 155 VAC 60 Hz power and draw approximately five watts.

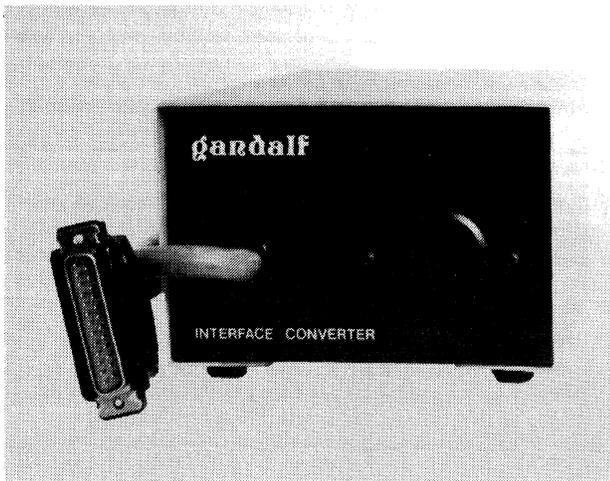
### PRICING

All Gandalf interface converters are available for purchase only. Each comes with a standard one-year warranty.

## EQUIPMENT PRICES

	Purchase Price (\$)
IFC 201	425
IFC 202	425
IFC 203	425
IFC 204	425
IFC 205	425
IFC 206	425
IFC 207	400
IFC 208	400
IFC 209	650 ■

# Gandalf Data, Inc. Interface Converters



## MANAGEMENT SUMMARY

The Gandalf Data, Inc. IFC 200 interface converter series consists of nine models that create a compatibility between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE). Each of the converters has a different set of interface specifications. They are all equipped with self-contained power supplies and mount on a desk top.

Most of the models conform to the RS-232-C specifications outlined by the Electronic Industries Association (EIA). RS-232-C, the most widely adopted interface standard in the United States, describes physical and electrical parameters for connections at speeds up to 20,000 bps. Models IFC 201, 202, 203, and 204 provide interfacing between RS-232-C and RS-422 or RS-423 connections. EIA RS-423, a version of the EIA RS-449 specification, is functionally but not physically compatible with RS-232-C. For higher transmission rates, the RS-422 version of the RS-449 interface specification has the ability to transmit at up to 2M bps. For more information on RS-449, see Report C07-407-201 in Volume 1.

IFC Models 207, 208, and 209 provide RS-232-C to AT&T 300 interfacing. These converters are used with the AT&T Series 300 data sets, which support high-speed transmission. IFC Models 205, 206, and 209 provide RS-232-C to CCITT V.35 interfacing, which is used for high-speed (48K bps) communications over international wideband channels. CCITT V.35 is a subset of the CCITT V.24 modem interface specification. CCITT V.24, a widely adopted international interface recommendation, is largely compatible with RS-232-C.

## COMPETITIVE POSITION

Gandalf's competitors include Avanti Communications and the Black Box Catalog. Avanti manufactures six types of interface converters, including the Model 100 RS-232-C ▶

Gandalf's interface converters include nine standalone, self-powered interface units that provide compatibility between DTE and DCE.

**MODELS:** IFC 201, 202, 203, 204, 205, 206, 207, 208, and 209.

**CONVERSION:** IFC 201, 202, 203, and 204—RS-232-C to RS-422 or RS-423 connection; IFC 205 and 206—RS-232-C to CCITT V.35; IFC 207 and 208—AT&T 300 to RS-232-C; IFC 209—AT&T 300 to CCITT V.35.

**TRANSMISSION RATES:** According to the connected DTE or DCE.

**COMPETITION:** Avanti Communications Corporation, Black Box Catalog.

**PRICE:** Ranges from \$400 to \$650.

## CHARACTERISTICS

**VENDOR:** Gandalf Data, Inc., 1019 South Noel Avenue, Wheeling, Illinois 60090. Telephone (312) 541-6060. In Canada: Gandalf Data, Ltd., 9 Slack Road, Ottawa, Ontario K2G 0B7. Telephone (613) 225-0565.

**DATE OF ANNOUNCEMENT:** January 1982.

**DATE OF FIRST DELIVERY:** April 1982.

**NUMBER DELIVERED TO DATE:** Information not available.

**SERVICED BY:** Gandalf Data.

## MODELS

The Gandalf IFC Series converters operate with Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) as follows:

<u>Model No.</u>	<u>DTE Interface</u>	<u>DCE Interface</u>
IFC 201	RS-423	RS-232-C
IFC 202	RS-422	RS-232-C
IFC 203	RS-232-C	RS-423
IFC 204	RS-232-C	RS-422
IFC 205	CCITT V.35	RS-232-C
IFC 206	RS-232-C	CCITT V.35
IFC 207	AT&T 300	RS-232-C
IFC 208	RS-232-C	AT&T 300
IFC 209	AT&T 300	CCITT V.35

## CONFIGURATION

Each converter is a standalone device that is placed between the DTE and the DCE. Each device has the appropriate cable and connectors to accommodate the interfaces. There are no controls, indicators or adjustments. Each converter has a one-ampere convenience outlet that can be used to power the modem. ▶

## Gandalf Data, Inc. Interface Converters

▷ to V.35 unit and the Model 170 V.35 to RS-232-C converter. Black Box Catalog's BBIC Series contains four models of converters that handle the same conversions as some of the IFC models.

### ADVANTAGES AND RESTRICTIONS

These devices are simple units that operate in a standard way. Gandalf is an excellent, well-established company that offers a broad range of data communications equipment. The products' greatest advantage is the company's fine reputation in the data communications marketplace.

### USER REACTION

Gandalf did not provide a list of users for these products; therefore, we could not survey user reaction. □

### ▶ DEVICE CONTROL

Once power is applied, operation of the converters is automatic. Data and control signals are applied, converted, and passed to the appropriate pin of the connector at the interface.

Model IFC 201 provides conversion between an RS-232-C modem interface (DCE) and an RS-423 business machine interface (DTE). The unit comes with a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

The IFC 202 provides conversion between an RS-232-C modem interface and an RS-422 business machine interface. The unit has a five-foot cable terminated with a DB25P connector for the modem connection, and a rear-panel mounted DB37S connector for the business machine connection.

Model IFC 203 provides conversion between an RS-423 modem interface and an RS-232-C business machine interface. The unit comes with a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 204 provides conversion between an RS-422 modem interface and an RS-232-C business machine interface. The unit has a five-foot cable terminated with a DB37P connector for the modem connection, and a rear-panel mounted DB25S connector for the business machine connection.

Model IFC 205 provides conversion between an RS-232-C modem interface and a V.35 business machine interface. The unit has a five-foot long cable terminated with a DB25P

connector for the modem connection and a rear-panel mounted MRAC 34SJ connector for the business machine connection.

Model IFC 206 provides conversion between a V.35 modem interface and an RS-232-C business machine interface. The unit comes with a five-foot cable terminated with MRAC 34PJTCH connector for the modem and a 48-inch cable terminated with a DB25S connector for the business machine.

Model IFC 207 provides conversion between an RS-232-C modem interface and a Series 300 business machine interface. The unit contains a 12-pin Burndy connector to interface with the Series 300 business machine cable. The IFC has a five-foot cable terminated with a DB25P connector to plug into the modem.

Model IFC 208 provides conversion between a Series 300 modem interface and an RS-232-C business machine interface. The unit supplies a five-foot cable terminated with a DB25S connector to mate with the cable coming from the business machine. A four-foot long cable (containing nine coaxial cables) terminated with a 12-pin Burndy connector is provided to interface with the 300 Series modem.

Model IFC 209 provides conversion between a V.35 modem interface and a Series 300 business machine interface. The unit supplies a five-foot long cable terminated with an MRAC 34 PJTCH connector for the modem, and a 12-pin Burndy connector for interfacing with a Series 300 cable.

### PHYSICAL SPECIFICATIONS

All members of the Gandalf interface converter family have the same dimensions and weight. The units measure 8½ inches by 4½ inches by 3¼ inches, and weigh approximately three pounds. All models have a six-foot power cord with a standard three-pin grounding plug. The units operate on 155V AC 60 Hz power and draw approximately five watts.

### PRICING

All Gandalf interface converters are available for purchase only. Each comes with a standard one-year warranty.

	Purchase Price
IFC 201	\$425
IFC 202	425
IFC 203	425
IFC 204	425
IFC 205	425
IFC 206	425
IFC 207	400
IFC 208	400
IFC 209	650 ■