

FAPIA-Interface

1. Data Structures

```
struct FAPIParameter
{
    unsigned char *      logical_object_name;    /* device_name */
    unsigned char *      parameter_name; /* parameter_number[;subindex] */
};
```

```
enum FAPIDataType
{
    FAPIA_DATA_TYPE_CHAR           = 1,
    FAPIA_DATA_TYPE_UCHAR          = 2,
    FAPIA_DATA_TYPE_SHORT          = 3,
    FAPIA_DATA_TYPE_USHORT         = 4,
    FAPIA_DATA_TYPE_LONG           = 5,
    FAPIA_DATA_TYPE_ULONG          = 6,
    FAPIA_DATA_TYPE_STRING         = 7,
    FAPIA_DATA_TYPE_DOUBLE         = 8
};
```

```
struct FAPIValue
{
    FAPIDataType          data_type;
    unsigned long         data_len;
    void*                data_value;
    unsigned char *       unit;
};
```

```
enum FAPICommunicationPriority
{
    FAPIA_COMMUNICATION_PRIORITY_LOWEST = 1,
    FAPIA_COMMUNICATION_PRIORITY_LOW    = 2,
    FAPIA_COMMUNICATION_PRIORITY_NORMAL = 3,
    FAPIA_COMMUNICATION_PRIORITY_HIGH   = 4,
    FAPIA_COMMUNICATION_PRIORITY_HIGHEST = 5
};
```

```
struct FAPICommunication
{
    unsigned long          transaction_id;
    unsigned char *       source_physical_object_name;
    FAPICommunicationPriority priority;
    unsigned char         send_reply; /* 0 - do not reply */
    unsigned long         number_of_entries;
};
```

```
enum FAPIErrorCode
{
    FAPIA_ERROR_OK                = 0,
    FAPIA_ERROR_COMMUNICATION     = -1,
    FAPIA_ERROR_DESTINATION_NOT_ONLINE = -2,
    FAPIA_ERROR_OBJECT_NOT_FOUND   = -3,
    FAPIA_ERROR_PARAMETER_NOT_FOUND = -4
};
```

```

struct FAPIAError
{
    FAPIAErrorCode          error_code;
    char *                  reason;
};

```

2. Methods

2.1 Initialisierung

2.1.1 Common

```

long fapia_init (
    const char *          const name);

```

Note:

name ist z.B. "CNC", "M1_CAN", "M2_CAN", usw.

name muß mit dem Objekt der Konfigurationsdatei übereinstimmen

```

long fapia_deinit (void);

```

2.1.2 Initialization of Caller

```

long fapia_set_callback_for_parameter_read_response_callback (
    long (*f) (const FAPIACommunication *,
               const FAPIAPParameter *,
               const FAPIAValue *,
               const FAPIAError *));

```

```

long fapia_set_callback_for_parameter_write_response_callback (
    long (*f) (const FAPIACommunication *,
               const FAPIAPParameter *,
               const FAPIAError *));

```

2.1.3 Initialization of Callee

```

long fapia_set_callback_for_parameter_read_request_callback (
    long (*f) (const FAPIACommunication *,
               const FAPIAPParameter *));

```

```

long fapia_set_callback_for_parameter_write_request_callback (
    long (*f) (const FAPIACommunication *,
               const FAPIAPParameter *,
               const FAPIAValue *));

```

2.2 Read Parameter

2.2.1 Caller

```
long fapia_parameter_read_request (  
    FAPIACommunication *      const fapia_communication,  
    const FAPIAParameter *    const fapia_parameters);
```

Note:

fapia_communication.transaction_id und
fapia_communication.source_physical_object_name werden von
FAPIA-Lib eingetragen.

```
long fapia_parameter_read_response_callback (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAValue *          const fapia_values,  
    const FAPIAError *          const fapia_errors);
```

2.2.1 Callee

```
long fapia_parameter_read_request_callback (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters);
```

```
long fapia_parameter_read_response (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAValue *          const fapia_values,  
    const FAPIAError *          const fapia_errors);
```

2.3 Write Parameter

2.3.1 Caller

```
long fapia_parameter_write_request (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAValue *          const fapia_values);
```

```
long fapia_parameter_write_response_callback (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAError *          const fapia_errors);
```

2.3.2 Callee

```
long fapia_parameter_write_request_callback (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAValue *          const fapia_values);
```

```
long fapia_parameter_write_response (  
    const FAPIACommunication *  const fapia_communication,  
    const FAPIAParameter *      const fapia_parameters,  
    const FAPIAError *          const fapia_errors);
```